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AND ENGINEERING RECORD

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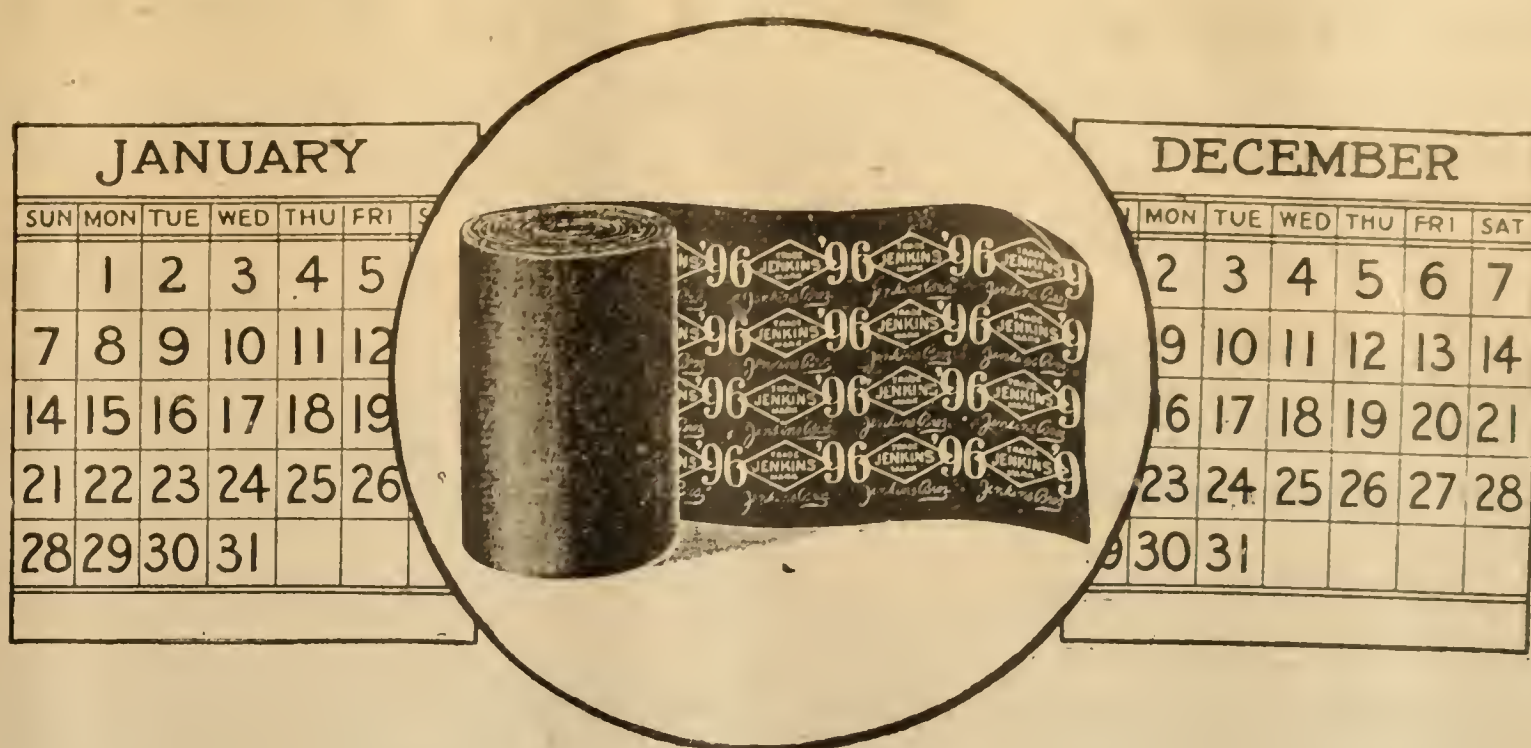
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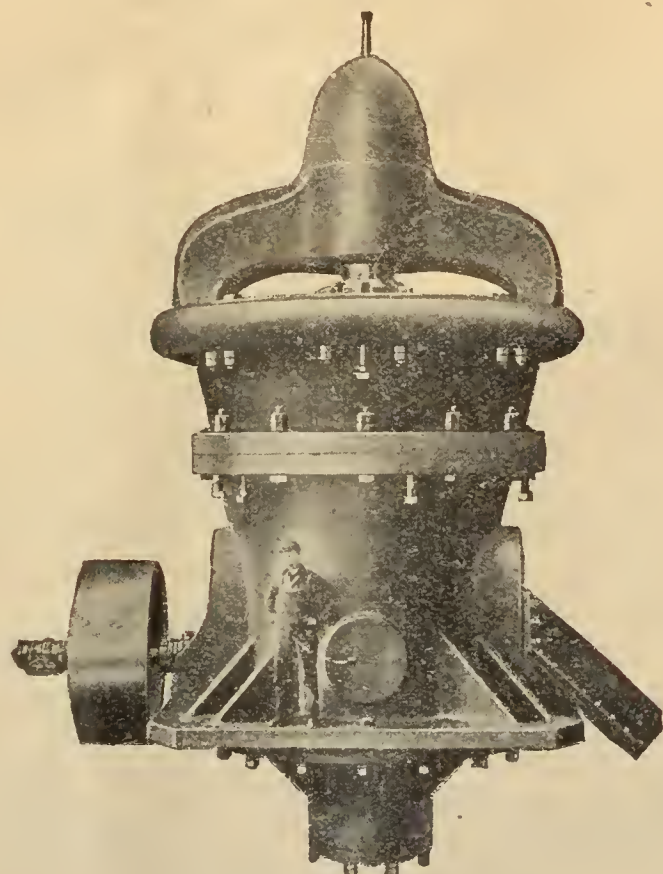
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CONTENTS.

PAGE

Notes and News	655
Topics of the Week:	
The Debate on the State Mines' Lease	657
Transvaal Chamber of Mines: Annual Report	658
Organising Safety Work in Mines—II.	659
S.W. Transvaal Diamonds: January Returns	660
Personal	660
The Mines of the Barberton District—II.	661
The February Gold Output in Detail	662
The Week in the Sharemarket	663
Official Review of Mining Conditions—IX.	665
Engineering Notes and News:	
The Progress of Industrial Research in South Africa	667
The Week in the Mining Material and Engineering Trades	671
Company Meetings: City and Suburban; New Heriot; Lydenburg Gold Farms; East Rietfontein Syndicate	677

Notes and News.

The whole Rand will welcome the official announcement that the King has given orders for the following, amongst other, appointments to the Most Excellent Order of the British Empire for services in connection with the war:—Commanders (C.B.E.): Mr. Ernest Chappell, financial adviser to the Union Defence Department and chairman of the Johannesburg branch of the Comforts Committee; Mr. Douglas Christopherson, vice-chairman of the Johannesburg local committee of the Governor-General's Fund and chairman of the Disabled Soldiers' Board, Johannesburg; and Mr. Evelyn Ashley Wallers, President of the Transvaal Chamber of Mines. Other appointments are that of Mr. E. G. Izod for his services on the War Market Committee to be an Officer (O.B.E.) of the Order; and Mr. F. Rowland, of the Red Cross Society of South Africa, to a similar distinction. Decorations are also bestowed on a band of noble ladies who have rendered distinguished war service.

* * * *

Those interested in the question of the prevention of miners' phthisis have been invited to attend a lecture by Mr. John Innes, of the Ferreira Deep, on the problem of the estimation of injurious dust in mine air. Mr. Innes will deal more particularly with the Kotzé Konimeter, recently invented by the Government Mining Engineer, and his lecture will be illustrated by lantern slides. The lecture is under the auspices of the Chemical, Metallurgical and Mining Society, but invitations have been sent to the Miners' Union, the Chamber of Mines, and the Mine Managers' Association. The system of catching the dust and counting the particles will be shown, with comparisons of the old and the new methods.

* * * *

Sir Lionel Phillips has been appointed Chairman of the newly-formed Tin and Tungsten Research Board. In the House of Commons, Mr. Kellaway, Joint Parliamentary Secretary to the Ministry of Munitions, replying to a question by Mr. Pemberton Billing, said that Sir Lionel Phillips had been Controller of the Mineral Resources Development Branch of the Ministry of Munitions since March, 1917, without remuneration. His duties included the investigation of the mineral resources of the United Kingdom, except coal and iron ores, and developing them for war purposes. Sir Lionel Phillips was assisted by an Advisory Committee representing the Board of Trade, the Geological Survey and the Institute of Mining and Metallurgy.

* * * *

The Senate of the South African School of Mines and Technology, at a meeting held recently, decided to forward for consideration by the School of Mines Council of the School a resolution that professional courses should be thrown open free to any invalided soldiers whose previous education makes it probable that they will benefit thereby, and that steps be taken to obtain funds for maintenance for such students when necessary. In pursuance of its declared policy, the Council of the School of Mines and Technology is refusing to grant bursaries to students of eligible age and who are medically fit, in the case of bursaries that are under the control of the Council. With regard, however, to bursaries granted by Government, no stipulation can be made, as such grants do not rest with the Council. In the meantime, a large number of students have been enrolled for this year's courses. The numbers to date are, approximately: day students, 150; students for evening classes, 650. Enrolments are still proceeding, and it is probable that, especially as regards the evening classes, last year's figures will be considerably exceeded, notwithstanding the inevitable deductions being made by reason of the Council's patriotic attitude.

The first report of the Public Accounts Committee dealing with the supplementary lease between the Government and the Government Areas was issued last Monday. It shows that at a meeting on March 1 the Chairman (Mr. Jagger) moved: "Your

Committee, having examined the supplementary lease entered into between the Government and the Government G.M. Areas (Modderfontein) Consolidated, Ltd., referred to it, and having taken evidence thereon, is of opinion that the said agreement should be confirmed. In the opinion of your Committee there should be continuous inspection of this mine by a trained official of the Government, whose reports should be published quarterly." To this Mr. Creswell moved as an amendment: "Your Committee, having examined the supplementary lease entered into between the Government and Government G.M. Areas (Modderfontein) Consolidated, Ltd., and having taken evidence thereon, begs to report that it is of opinion that the said agreement should not be sanctioned, and that it is very desirable that the Government should take measures to maintain efficient and close inspection of the operations of this mine." The Committee divided on these proposals, the amendment being carried by eight votes to six. The names were: For the amendment: Messrs. Duncan, Merriman, Creswell, C. Fichardt, Wilcocks, Nathan, Henderson and Enslin. Against: Messrs. Jagger, Papenfus, Graumann, Coetzee, Sir E. Walton and Dr. de Jager. Mr. R. N. Kotze, Government Mining Engineer, in his evidence before the Committee, stated that if the recovery of gold was 31s. and the costs 20s. 7d. the Government's share was £7,960,000 and the company's share £13,740,000, while when the recovery was 32s. and the working costs 19s. 6d. the Government's share on the old scale was £12,050,000. In this report he had assumed £42,000,000 of payable ore at 3 dwts. The mine had a large portion of what was classed as unpayable ore. In some sections there was as much as 60 per cent. of unpayable ore, i.e., under 3 dwts. Working costs had gone up a little on account of the war to somewhere in the neighbourhood of 19s. He was satisfied that under the new agreement the Government would secure a greater profit. The Government had little control over the mine, and he had advised the Government to adopt the suggestion of the Mining Leases Board to appoint a special official to look after the interests of the Government. Referring to the advance of £250,000 to the mine in 1916, Mr. Kotze said he thought no instalments had yet been repaid, and he believed it was obtained free of interest. He knew nothing about the transaction, although he was consulted as to the advisability of letting the mine have the Government share of profit up to £250,000 as a loan. The Government's share of the profits in 1915 and 1916 went into the mine, which together came to about £45,000, which was given as a loan free of interest. Taking the whole life of the mine, he considered the Government was going to benefit by agreeing to the alterations of the lease. After he had got to an agreement with the company the Government submitted the matter to the Mining Leases Board, consisting of Messrs. Leisk and Roos (Secretary of Justice), who concurred that the agreement would be beneficial to the Government. He estimated the ratio of profit to recovery at between 32 and 51 per cent., and the probable gain to the Government at between £3,000,000 and £4,000,000. If the company picked out the eyes of the mine in the beginning and took out the lower grade ore at a later stage in the life of the mine as contrasted with mining average grade ore, the Government would benefit. The Government would get a larger share of the profit than if the grade was kept uniform.

* * * *

The report of the Executive Committee of the Rhodesia Chamber of Mines for the month of January, 1918, has the following, *inter alia*:—The following is a summary of the returns of native labourers employed on

Southern Rhodesian mines during the months of November and December, 1917: Local, November 11,819, December 11,100; Portuguese Territory, November 6,505, December 6,317; Northern Rhodesia, November 7,703, December

7,983; Nyasaland, November 8,701, December 8,702; other sources, November 989, December 1,034; totals, November 35,717, December 35,136. The number employed in December shows a decrease of 2,754, as compared with the corresponding month in 1916. The second conference of the Rhodesian mining industry will be held in Bulawayo on the 20th and 21st March, 1918, and will be presided over by the President of the Chamber. Circulars of invitation have been sent to every mine in the country, as well as to mining merchants and others. Members are hereby requested to kindly forward to the secretary at once, the title of any subject appertaining to the mining industry which they desire to be discussed at the conference. The 23rd annual general meeting of the Chamber will be held in the Council Chamber of the Bulawayo Municipal Offices, on Wednesday, 27th March, 1918, at 3.30 p.m. The Chamber has been notified by the Administration that Mr. W. M. Aeworth, Commissioner to the Railway Enquiry, has sailed from England for South Africa. The first sitting will be held at Bulawayo, and it is expected to take place in March next. Owing to the interruption of traffic from Beira, through floods, it was feared there would be a shortage of cyanide and zinc supplies in Rhodesia, and the Transvaal Chamber of Mines, upon representations being made to it by the Chamber, intimated its desire to assist the Rhodesian industry in this matter. The position, however, became easier, and it was found unnecessary to take advantage of the friendly offer of the Transvaal Chamber, to whom the Executive has expressed its appreciation and thanks. Advice has been received from the B.S.A. Company that the Imperial Government has agreed to increase the price of tungsten ore to £3 per unit on a 65 per cent. basis of tungstic acid, landed in London, and also to pay the difference in freight and insurance between the amount actually paid and the rates ruling in September, 1915; or, alternatively, to pay £2 12s. 6d. per unit at the mine. Any workers of tungsten ores who wish to avail themselves of these facilities should communicate immediately with the Resident Mining Engineer, B.S.A. Company, Box 186, Bulawayo. The Chamber has been advised that the supply of glycerine to Southern Rhodesia is intended for all mines which have hitherto drawn their requirements from the firms operating in that territory. Mr. W. J. Atterbury has been appointed as the representative of the Shamva Mines, Ltd., on the Chamber, vice Capt. L. Ludlow, at present on active service.

* * * *

A White Paper issued recently contains particulars of the reorganisation of the Board of Trade to meet the requirements of British commerce and industry after the war. The work of the Board will be organised in two main divisions (a) the Department of Commerce and Industry and (b) the

Department of Public Service Administration. The first main division will be sub-divided into seven sections, whose work will be as follows:—Commercial relations and treaties dealing with British commercial and shipping markets in the Empire and elsewhere. Overseas trade, including commercial intelligence and overseas trade development through trade commissioners and the consular services. Industries and manufactures, their development, stability, production, trade monopolies, combinations, alien penetration, and promotion of new trades. Industrial property, including patents, trade marks, inventions, prevention of abuse of monopoly, protection of British traders' rights in foreign countries. Industrial power and transport in its commercial aspect, and all questions of policy relating to industrial power. Statistics, including British trade returns, watching statistical data relating to progress of trade here and abroad. General economics, involving policy, and watchfulness and handling of economic questions. The second main division will be subdivided into five departments, as follows:—Marine, dealing with all shipping questions. Railways, including canals. Harbours, lighthouses, administration of gas, water, and electrical industries. Companies controlling and administering laws. Bankruptcy administration and legislation. Three general departments, dealing with law, finance and staff, complete the reform.

The Foreign Samples Department of the Oversea Trade Department has opened a remarkable exhibition in London, containing over 15,000 samples of enemy goods which have been collected since the war, with the object of showing British manufacturers the exact nature of enemy trade to the various parts of the Empire and other countries. The Department has secured prices, terms of credit, names of importers, and a vast quantity of most valuable information. The exhibition has just returned from a tour of Great Britain, and also paid a visit to Canada, during which it was visited by 15,000 actual manufacturers. The exhibition gives manufacturers every facility to make the closest study of exhibits, they being allowed to remove them in order personally to inspect them and confer with their workmen. An official of the Department said: "We hope to make the Hun business man sorry he ever embarked on the war." The markets represented by the samples include every part of the Empire, also Northern Africa, China, and Siam. In forming the collection every assistance has been received from the Consular officers and Dominion and Colonial Governments. Great efforts are being made to keep the samples thoroughly up-to-date. One large collection is now *en route* to England from the Dutch East Indies.

* * * *

Art and industry will be blended in unique fashion at the exhibition of pictures of the gold mines by Mr. Gwelo Goodman, which will open on Wednesday next, the 20th inst., at Messrs. Herbert Evans's Gallery, Von Brandis Square. Mr. Goodman's pictures represent a serious attempt to deal with gold mines and mining from an artistic standpoint and promise to be of the utmost interest to the art-loving public in Johannesburg. From a preliminary view of the pictures which we have been privileged to enjoy, we believe they will be welcomed as revealing in a new and true light, the essential beauty and variety of the industry in its many moods and phases. The artist has not attempted to make for us merely pretty pictures of the mines, nor has he adopted the device of dragging in the glory of the African sunset to render acceptable scenes otherwise sordid and frankly utilitarian. Instead, he has given us in the manner that he has made peculiarly his own, wherein he apes no school and follows no cult, a series of delightful studies of the Rand—its snowy wastes or weathered wilds of dumps, its mills and headgears, old and new, and all the familiar yet ever-changing scenes of living, pulsating industry. With the ageing of the mines, we are apt to forget that the landscape of the Reef is continually changing, and it is mainly to put on record the familiar scenes of to-day that the artist embarked on his self-imposed task. How effectively he has succeeded in fulfilling that task our readers can judge for themselves during the week. The following list of some of the subjects chosen will interest, though it can give no indication of their varied treatment and delightful handling. Robinson No. 1 Shaft; City and Suburban, Evening; The Old Market Square, 1912; Midday, City and Suburban Shaft; The New Goch; Robinson Deep No. 1 Shaft; The Broken Slimes Dam, Afternoon; From Above Areadia, Parktown; Robinson No. 1 Shaft; The Manager's House, Crown Mines (kindly lent by Mrs. R. C. Warriner); Robinson Central and Power Station; Aurora West; The Old Wemmer; The Distributor, Langlaagte; Robinson Shaft No. 2, After Rain; Pritchard Street; Langlaagte Block "B"; Modder Deep; Ferreira, from the Carlton Hotel; Near the New Modderfontein; The Shafts at Modder Deep; New Modderfontein (kindly lent by His Excellency the Governor-General); From the Slimes Dam of Modder Deep; Evening on the Main Reef Road; Village Main Reef Shaft; Robinson Deep No. 2 Shaft; Robinson Central Dam; City and Suburban; The New Comet; Tailing Wheel, Village Deep; From the City and Suburban Dump; Cyanide Tanks at Modder Deep; Modder Deep from Slimes Dam; Henderson's Buildnig; Johannesburg from Braamfontein; On the Main Reef Road; Brakpan from Modder Deep; New Modderfontein; Jumpers Deep; On the East Rand Road; New Plant, Modderfontein; Near Langlaagte; Tailing Wheel, New Goch; Robinson Dam; Mine Dump and Dam, Evening; Town Hall, Portico. This list by no means exhausts the whole, which will be relieved and brightened, moreover, by some exquisite little studies of familiar flowers.

TOPICS OF THE WEEK.

THE DEBATE ON THE STATE MINES LEASE.

Though the decision of the Union Assembly in regard to the alteration in the lease of the State Mines is not known up to the time of going to press, it may be assumed that despite Messrs. Merriman, Duncan, Creswell, and the Nationalists, the Government will adopt the recommendation of its chief mining adviser, Mr. Kotzé, and of Messrs. Leask and Roos, the other members of the Mining Leases Board. It is unthinkable that the Government should be frightened out of its perfectly right and logical position in the matter by the fact that some members of Parliament disagree with the expert opinion of its advisers, and that some people outside Parliament should fear for the good name of the Government for following that opinion and advice. The question at issue is of a highly complicated technical nature involving some of the most difficult considerations of mining policy and economics, yet members of the Assembly air their views with a glibness that they would never exhibit in regard to any other technical question. The contradictory nature of most of the speeches made against the sanction of the change in the lease may be gauged from the closing remark of Mr. Duncan's, "that he did not care twopence if the revised agreement went through or not." As against this, it seems that the attitude of the Minister of Mines is both reasonable and clear. Since Parliament had last met two big areas had been leased, and the Government was at the present moment considering a third lease on the advice of the gentlemen who gave evidence before the Select Committee, and for whose probity and capacity both Mr. Duncan and Mr. Merriman had stated that they had the greatest respect. "But what," asked Mr. Malan, "must one think of the actions of those members when they said so and when they refused to accept the statement of Mr. Kotzé, who, in every answer he had given, and in every line he had written, had told the Government, as their responsible man, to go into this contract. When the matter was referred to the Select Committee on Public Accounts the Government expected it to go into the matter from the financial point of view, call evidence and then report to the House on the merits of the evidence. The Committee could not show a tittle of evidence to support the majority report." The whole question, he said, was how to work the mine most efficiently in the interests of both Government and company. Mr. Malan concluded by declaring that if the House was not prepared to trust the Government so far as contracts of this kind, then it became a very serious matter whether the Government should go on with leasing the areas. Mr. Jagger, who, as Chairman of the Select Committee, had been outvoted by Mr. Duncan and Mr. Merriman in the Committee, showed that the leasing of the areas on shares had been agreed to long ago, and after all the proposal only amounted to a change in the lease and was nothing but a business matter. Personally, he said, he did not like disturbing a contract made by the Government, but in this instance he was prepared to face the contingency. "The fact of the matter was that when the contract was entered into nobody had had any experience of leases and claims of this kind." Knowing human nature, added Mr. Jagger, he could only expect that in the working of the mine under the old scheme more attention would be paid to the best interests of the shareholders instead of working at the highest efficiency. He admitted there was much to be said for the argument that this might lead to similar requests in the future, but they would be considered on their merits, and with the safeguard of the alterations having to be submitted to Parliament no difficulty need be anticipated. He thought with the safeguards the House could very safely agree to this alteration. And this endorsement by a business man like Mr. Jagger, of the highest technical advice of disinterested Government experts will, we have no doubt, be supported by the majority of the members of the House of Assembly, especially in view of the frank appeal made later in the debate by the Prime Minister.

TRANSVAAL CHAMBER OF MINES: ANNUAL REPORT.

A Review of the Industry.

THE report of the Executive Committee of the Transvaal Chamber of Mines for 1917 has the following:—The financial statements attached to this report show that the receipts from all sources amounted to £23,605 0s. 1d., and the expenditure to £24,118 4s. 1d., the expenditure for the year exceeding the income by £513 4s. The cash balance at December 31st amounted to £3,653 17s. 5d., made up as follows:—Johannesburg: At bank on current account, £2,631 5s. 5d.; London: At bank on current account, £1,022 12s. On December 31st there were 71 ordinary members of the Chamber, viz.: Class I., 1; Class II., 18; Class III., 9; Class IV., 42; Special, 1. There were 1 associate and 6 honorary members. During the year 3 ordinary members joined the Chamber, and 1 withdrew from membership. Arrangements have been agreed to for the establishment of a special Colliery Section of the Chamber. The necessary alterations in the Chamber's constitution to enable this to be done are now in hand. During the past year the following meetings were held: Meetings of members, 5; meetings of Executive Committee, 43; Sub-Committees, conferences, deputations, etc., 192; total number of the Chamber's meetings for the year, 240. In addition, 310 meetings of various institutions and societies connected with the Chamber were held in the Chamber during the year. The returns furnished by the Witwatersrand Native Labour Association, Ltd., show that the following native labourers were employed by members of the Association on the last day of December in each of the years 1916 and 1917. These figures include natives in the service of mine contractors, but exclude natives in the employ of members of the Association in the district of Barberton, as well as at the Breyten, Cornelia, Coalbrook and Spitzkop Collieries.

	1916.		1917.	
	East Coast.	Others.	East Coast.	Others.
On Gold Mines ...	72,348	119,199	71,172	101,568
On Coal Mines ...	9,877	1,610	10,472	1,223
On Diamond Mines ...	124	5,070	165	4,428
On Tin Mines ...	76	689	65	563
	<u>82,425</u>	<u>126,568</u>	<u>81,874</u>	<u>107,782</u>

As regards the Transvaal Province as a whole, the total number of native labourers employed in proclaimed labour districts was as follows on December 31st, 1917 (from returns furnished by the Government Native Labour Bureau): Employed on mines and on the various classes of works, i.e., chemical, metallurgical, brickmaking, and other works as defined in Part I. of the Coloured Labourers' Health Regulations Ordinance of 1906, 199,888; other employ, 57,409; total, 257,297. The number of native labourers recruited, throughout the years 1916 and 1917, by the Witwatersrand Native Labour Association, Ltd., the Native Recruiting Corporation, Ltd., and members of the W.N.L.A. recruiting independently, is shown in the following tabulated form:—

Source.	1916.	1917.
	1st Jan. to 31st December.	1st Jan. to 31st December.
East Coast Natives:		
Recruited by W.N.L.A. ...	47,529	41,483
Local and Voluntary ...	15,036	16,619
Total East Coast Natives ...	<u>62,565</u>	<u>58,102</u>
British S.A. Natives:		
Recruited by N.R.C. ...	82,641	65,917
Recruited independently by Members of W.N.L.A. ...	4,756	10,298
Local and Voluntary ...	85,079	79,313
Total B.S.A. Natives ...	<u>172,476</u>	<u>155,528</u>
Grand total (excluding Contractors' Natives) ...	<u>235,041</u>	<u>213,630</u>

The native labour position on mines and works in proclaimed labour districts of the Transvaal at the end of 1917, as compared with the position at the end of 1916, is shown in the following table:—

Place of Origin.	Number Employed.		Increase	Decrease
	Dec. 31st, 1916.	Dec. 31st, 1917.		
East Coast, south of Lat. 22° S. ...	83,473	82,286	—	1,187
Portuguese Tropical Areas	1,219	948	—	271
Basutoland ...	17,226	14,309	—	2,917
British Bechuanaland ...	3,895	2,646	—	1,249
British Nyasaland ...	650	659	9	—
North-Eastern Rhodesia ...	42	39	—	3
Cape Province ...	72,324	63,251	—	9,073
South-West Africa ...	—	—	—	—
Natal and Zululand ...	11,524	11,759	235	—
Orange Free State ...	1,226	1,159	—	67
Southern Rhodesia ...	590	490	—	100
Swaziland ...	4,235	4,196	—	39
Transvaal ...	22,539	18,104	—	4,435
Others ...	48	42	—	6
Totals ...	218,991	199,888	—	19,103

From this table it will be seen that there was a total decrease of 19,103 in the number of natives employed at the 31st December, 1917, as compared with the number at the corresponding date in 1916.

The success in the prevention of pneumonia following the use of Dr. Lister's anti-pneumonia vaccine, and the increasing demand for native labour by industries in the Union, induced the Chamber to suggest to the Government the advisability of permitting the introduction of an experimental batch of tropical natives, to be inoculated with Dr. Lister's vaccine and kept under observation and report by the South African Institute for Medical Research, with a view to determining the efficacy of the vaccine in reducing pneumonia amongst such natives. It will be remembered that pneumonia was the chief cause of the heavy mortality amongst tropical natives when they were previously employed on the Rand. At the end of the year the matter was still under consideration. A serious outbreak of typhus fever in Cape Colony rendered it necessary to take precautions to prevent the extension of the outbreak to the Rand, and with this end in view, an arrangement has been come to between the Government and the Chamber for the establishing of a receiving and disinfecting station at Sterkstroom, through which most of the Cape Colony natives coming to the Rand will pass, and where they will be examined and disinfected. The building of the station is in hand. In conjunction with the contingent of native labourers recruited by the Government for service in Europe, a number of native hospital orderlies were trained by the Witwatersrand Native Labour Association, Ltd., at its hospital, for service with the contingent, and the Association also placed a portion of its compound at the disposal of the Director of Medical Services for the boarding of invalided natives returning from East Africa. The judgment of the Magistrate's Court at Boksburg in the case of Pearlman against the East Rand Proprietary Mines, Ltd., convicting that company, by reason of its having supplied boots to natives at cost price, of trading on mining ground and of paying wages in other than current coin, has been reversed on appeal.

(To be continued.)

Zaaip laats Tin.

The Zaaip laats results for February, 1918, were as follows:—Days run, 24; ore milled, 924 short tons; residues re-treated, nil; concentrates won, 46 long tons; average value of concentrates, 72 per cent. metallic tin; estimated profit for the month, excluding Government taxes on profits, £6,142 6s. 4d.; add adjustments in respect of estimated values of previous shipments, £112 8s. 6d.; profit declared for the month, £6,254 14s. 10d.; capital expenditure, £50 18s. 11d.

ORGANISING SAFETY WORK IN MINES.—II.

Important Report on the Means Best Adapted for the Promotion of Safety

[By H. M. WILSON AND J. R. FLEMING.]

ORGANISATION of safety work naturally differs somewhat in the various mining fields, largely in consequence of local conditions, whether the mines are coal or metal, and the number of men employed. With certain changes to suit large or small operations the following scheme has proved successful and should serve as a basis for new organisations:

SAFETY INSPECTOR.

A large company operating several mines should have a safety department, in charge of a safety inspector or a safety engineer, depending upon the number of mines and the extent of the operations. His services should be devoted solely to safety work, independent of the operating department, and he should report directly to the executive. A person charged with and responsible to the executive for the adoption and enforcement of safety measures is far more effective in producing results than any committee. The department chief may have one or more assistant inspectors for carrying on the work according to the extent of the territory and the number of operations under his supervision. Regular and careful inspections of all equipment and of conditions in every mine are made and proper safety measures are introduced. The inspector should receive the co-operation and active support of superintendents and foremen in furthering such work. In smaller operations the safety work must necessarily be more closely associated with the operating department, in which event the inspector may perform duties other than those connected with mine inspection. The mine rescue and first-aid department usually comes under the supervision of the inspector. In some instances the inspector is called upon to assist in the welfare and educational work and to encourage, with the view of improving health conditions, better standards of living among the employees.

SAFETY COMMITTEES.

Some or all of the following committees should be maintained according to the size and number of the various operations controlled by each company: (1) A central safety committee, composed of the general manager, general superintendent, chief engineer, inspector, secretary, or other officials, which should hold monthly meetings. Reports and recommendations of the inspector and of sub-committees should be received and if practical put into effect; the causes of accidents studied and classified, and steps taken to avoid the recurrence of similar accidents. Regular trips of inspection should be made and greater impetus given the movement by frequent public meetings in the interest of safety. Due publicity will thereby be given in addition to the constant evidence afforded by the work as it progresses. (2) A plant safety committee composed of the superintendent, assistant superintendent, mine foremen, captains, firebosses, electrical engineer, mechanical engineer, mining engineer, and chief clerk. In the smaller operations this committee might be substituted for the central safety committee and perform the functions outlined above; in this event the inspector would be a member *ex officio*. Reports should be submitted to the executive head, usually the general superintendent. The members of this committee would be the active agents in carrying out the provisions of the law and such measures as may be adopted for promoting safety. This committee should hold regular monthly meetings for the consideration and discussion of all safety problems and submit monthly a detailed written report stating the progress made, with recommendations. These reports would give the judgment and recommendations of men who have had the most intimate experience with all the various divisions of underground work and would tend to standardise underground practice as a whole. It is extremely important that the foremen become actively

interested, as it is the foremen who must enforce the rules finally adopted, and service in the committee best acquaints them with the reason for these rules. (3) At each mine a mine safety committee should be organised, consisting of men doing different kinds of work and usually of different nationalities. This committee would make regular monthly inspections and submit written reports, with recommendations, directly to the central safety committee or the executive. The committee should consist of three members appointed by the superintendent or the foreman or elected by the miners as conditions may indicate will prove most satisfactory and effective. Each member should serve two or four months and be succeeded by a new member, so that in time a large number of men of various nationalities would have been in a position where they would feel individual responsibility and could more readily understand the need of co-operation. All members of this committee should be furnished with a safety button specially designed for each company, the ex-members retaining theirs in honorary membership. Inspection trips of such workmen's committees tend greatly to interest the men. Better co-operation is ensured and habits of indifference and carelessness are discouraged. For all time spent in this work, the members of the committee should receive their regular pay. Mixed committees of workmen and foremen and other officials have been appointed at some mines. Such committees, acting as plant committees, have the advantage of bringing the management and men together in work for greater safety, and induce a comparison of viewpoints.

SPECIAL INSPECTION.

In addition to the inspection provided by law some companies have established special systems of inspection by dividing the mines into separate sections, each embracing 25 to 40 men and being under the direct supervision of an assistant foreman or safety boss, who must visit and inspect during the day at two to three hour intervals all working places, give instructions, and see personally that his orders are understood and carried out. As the greatest number of injuries and fatalities happen in working places and are caused by falls of roof, ore, or coal, such a system commends itself as a practical means of getting results.

SAFETY DEPARTMENT FOR SMALL MINES.

At small mines employing 50 to 100 men, or even in some of the larger mines where the employment of a special safety inspector is not warranted, safety organisation can probably be advanced best through a safety department formed by the local management. This work to be successful must have the active sympathy and support of one of the higher officials of the company, preferably the one acting as safety inspector. The mine superintendent might have immediate direction of the safety work, and be empowered to adopt any desired safety measures for any particular mine. A plant committee, composed of the superintendent, foreman and assistants, and a mine safety committee, composed of three representative workmen, could proceed along the same lines as outlined for larger mines and with greater thoroughness. Such committee work does not in any way replace the more valuable supervision and careful and frequent daily underground inspection by foremen and assistants, but supplements them and stimulates interest in safety. Safety is a personal matter, and the personal contact of officials and men in small mines is an advantage that should result in a rapid response to the safety idea. Educational work can be promoted in its entirety and safety measures adopted on a scale affecting the greatest number of workmen. A group of small mines separately owned may advantageously co-operate in a joint safety organisation, perhaps associated with a central rescue station.

*From Report of U.S. Bureau of Mines.

(To be continued.)

S.-W. TRANSVAAL DIAMONDS: JANUARY RETURNS.

THE returns from the diggings of the South-Western Transvaal for the month of January show a total of 4,572³/₄ carats, value £28,657 5s. 6d., which was a small increase upon December's total of 4,570³/₄ carats, value £27,871 12s. There were 40 contributing areas and these were as follows (those with * being in the Wolmaransstad district, with † in Potchefstroom district, and the remainder in the Bloemhof district):

	Carats.	Value.
Kameelkuil	812	£5,215 17 6
*Leeuwfontein	567 ¹ / ₂	3,679 0 6
*Syfergat	495 ¹ / ₄	3,349 1 6
London	476	2,897 12 6
Italie	509 ³ / ₄	2,664 5 0
Klein Italie	407	2,524 15 0
Bloemhof	245	1,634 16 0
Blesbokfontein	204 ³ / ₄	1,580 12 6
Schweizer-Reneke	113 ¹ / ₂	757 0 0
Dievedraai	69 ¹ / ₂	606 0 0
*Kareepan 137	89 ¹ / ₄	524 5 0
*Doornbult	93 ³ / ₄	461 12 6
Koksrust	88	400 0 0
Goedehoop	46 ¹ / ₂	236 7 6
Panfontein	40 ¹ / ₄	235 17 6
Mimosa	20	200 10 0
Bloemheuvcl	24 ¹ / ₂	173 0 0
Grootdoorns	24 ¹ / ₂	167 10 0
Plessisdam	17 ¹ / ₂	166 5 0
Christiana	34 ¹ / ₄	161 10 0
Zevenfontein	21	142 0 0
*Klipkuil	32	135 0 0
Rietput	20 ¹ / ₂	114 5 0
Cawood's Hope	13 ¹ / ₂	90 0 0

	Carats.	Value.
Nauwpoort	7 ³ / ₄	70 10 0
Koppiesvlei	23 ¹ / ₄	67 0 0
Homansvlei	12	60 0 0
Maroetjesfontein	5 ¹ / ₂	59 0 0
Kafferpan	9 ³ / ₄	55 0 0
*Katdoornkraal	9 ¹ / ₂	49 0 0
Mooifontein	13 ³ / ₄	45 5 0
Johannesrust	6 ³ / ₄	45 0 0
Middelbosch	5 ¹ / ₄	40 0 0
†Eastleigh	2	12 15 0
Diamantdoorns	2 ¹ / ₂	9 0 0
Grootpoort	1 ³ / ₄	9 0 0
*Holloway's Rust	2 ¹ / ₂	7 0 0
Kromellenboog	3 ¹ / ₂	6 0 0
†Goedgenoeg	³ / ₄	5 10 0
Sprenwfontein	¹ / ₂	0 2 6

SPECIALLY MENTIONED FINDS.

Among the diamonds registered were the following: At Kameelkuil, a parcel of five stones, aggregating 69³/₄ carats value £917, and one of 10³/₄ carats worth only £3; at Leeuwfontein, two aggregating 18¹/₄ carats value £243; at Syfergat, five aggregating 54¹/₄ carats value £785; at London, four weighing together 34¹/₂ carats value £492 10s.; at Italie, three aggregating 52³/₄ carats value £545, and one of 12¹/₄ carats value £88; at Bloemhof, two aggregating 19 carats value £327 10s., and one of 13¹/₂ carats value £80; at Blesbokfontein, two aggregating 32¹/₂ carats value £545; at Dievedraai, one of 16 carats value £224; at Doornbult, one of 12¹/₄ carats value £176, and another of 12¹/₂ carats value £20; at Mimosa, one of 8¹/₄ carats value £150; and at Plessisdam, one of 10 carats value £80.

PERSONAL.

Mr. E. H. Clifford, of the Corner House, has returned to the Rand.

* * * *

The annual meeting of the Transvaal Chamber of Mines will be held on Monday, March 25, at 2.30 p.m.

* * * *

The annual meeting of the Rhodesian Chamber of Mines will be held on Wednesday, 27th March, at Bulawayo.

* * * *

The sole representative of Messrs. Siemens in South Africa, Mr. A. J. C. Simpson, A.M.I.E.E., has made a change of office address in Capetown to 45a St. George's Street, 1st floor. Mr. Simpson's box number, 239, will remain the same.

* * * *

Mr. T. P. E. Butt, of the Randfontein Central, has succeeded Mr. E. G. Clifford Jones as Consulting Electrical Engineer to the Johannesburg Consolidated Investment Co. group of mines. Mr. Clifford Jones is starting as a consulting electrical engineer in Johannesburg.

* * * *

Mr. W. G. Wickham, British Trade Commissioner in South Africa, is shortly leaving for England to discuss questions of reorganisation under the new Board of Trade scheme. Mr. Wilson Good, who will succeed Mr. Wickham at the Capetown office, arrived from England a few days ago and will shortly pay a visit to the Rand.

* * * *

Lieut.-Colonel Leslie Brown, D.S.O., who has been directing the Mechanical Transport in East Africa since January, 1916, has returned to Johannesburg en route to England, where he proceeds on two months' leave. In addition to receiving the D.S.O. for services rendered in East Africa, Colonel Leslie Brown has been twice mentioned in despatches

Glynn's Lydenburg.

The Glynn's Lydenburg directors' interim report for the three months ended 31st January, 1918, shows that the following footage was driven, risen and sunk during the quarter in undeveloped ground: Compound Hill: Total, 1,676 ft.; on reef, 1,531 ft.; sampled, 1,400 ft.; payable, 1,180 ft.; average width and value of payable footage, 12·7 in., 17·9 dwts. Werf Mynpacht: Total, 783 ft.; on reef, 379 ft.; sampled, 210 ft.; payable, 190 ft.; average width and value of payable footage, 19·9 in., 14·7 dwts. Totals: Total, 2,459 ft.; on reef, 1,910 ft.; sampled, 1,610 ft.; payable, 1,370 ft.; average width and value of payable footage, 13·7 in., 17·3 dwts. In addition to the above, 108 ft. were driven, risen and sunk in developed ground in the Werf Mynpacht, of which 39 feet were on reef, 20 feet sampled, all payable averaging 7·6 dwts. over 26·1 in. Reduction works: Ore received from mine, 11,388 tons; tonnage crushed, 11,688 tons; number of stamps operating, 20; number of tube mills operating, 1; assay value of ore before crushing, 3·3 dwts.; assay value of mill tailings per ton, 5·9 dwts.; total, 9·2 dwts. Total yield, 5,000·1 fine ozs., equal to 8·6 dwts. per ton. Compound Hill: Good progress with development has been made in this section, considering the limited amount of labour available. Werf Mynpacht: The heavy rains greatly interfered with development work. Most of the development faces have been, and still are, under water. Additional pumping plant is being installed to de-water the mine, when development operations will be resumed. The Osborn shaft has been shut down until after the rainy season, the soakage water coming into the sides of the shaft making it unsafe to work at present. The face of the shaft is in good driving ground and good progress was being made when stopped by rains. Dividend No. 33 of 8³/₄ per cent. was declared on the 16th January, payable to shareholders registered at 31st January, 1918. Warrants will be issued during March.

THE MINES OF THE BARBERTON DISTRICT.—II.

History and General Review of Economic Aspects of the Geology of the Fields.

[By A. L. HULL,]*

FROM the point of view of distribution the auriferous deposits, other than alluvial, may be arranged in two main groups—those occurring in granite and those found in older rocks. Broadly speaking, gold mining in the granite has not been particularly successful; though payable deposits have been thus located in the past, they have not shown persistence, but the possibility of future discoveries is by no means excluded. More or less highly inclined true quartz reefs are the forms which gold deposits in the granite have generally assumed in the De Kaap Valley. Reefs in the older formations lie sometimes in the Jamestown Series, sometimes in Moodies Series, but their distribution within these does not depend so much on the nature of the country rock itself as on the proximity of the edge of the granite, which has shown to be intrusive into both these older groups. Thus the contact zone of the older granite is the home of the great majority of mines, and this conclusion is borne out by the Consort, Entente, Fortune Syndicate, New Fortuna, Golden Crescent, Mount Morgan, Three Sisters, Wyldsedale, Pigg's Peak, and Forbes Reef Mines, in all of which the workings are associated with one or other form of metamorphosed country rock, altered by the effects of granitic intrusion. But this reaches further than purely mineralogical transformation, since it was accompanied by powerful pressure and earth movements, as e.g., the Sheba Hills area clearly shows. The more resistant sediments of Moodies Series yielded along fracture planes, and mineralization occurred along and in close proximity to these planes of dislocation. In the wider sense, therefore, the contact belt of the granite includes also the Sheba, Fairview, Victory Hill, Clutha, and possibly the Agnes Mines. Thus one arrives at a gold belt following the line of contact with the granite, the gold found now in basic schists or carbonate rocks of the Jamestown, now in shales and quartzite of Moodies Series. One of the most striking features, noticeable after more extended traverses over the whole of the district, is the entire absence of indications of mineralized country further away from the granite within Moodies Series of the Barberton Mountain Land, the reason for this being readily apparent from the preceding remarks. If the line of working of the Barbrook, Imperial, French Bobs, Maid of the Mist, Aurora Mines, etc., seem to contradict the foregoing generalization, they do not lie too far from the intrusive granite on the Swaziland side for the influence of the latter to be altogether excluded. No general principles were observed, on which to base a more rigid genetic classification of the various reefs, excepting in so far as the mode of distribution explains the special characteristics of the leading types of deposits. The great majority of gold occurrences, excluding alluvial ones, may be grouped as follows: (a) *Impregnation Reefs*—that is, zones of auriferous rock, without more definite hanging and footwalls, usually showing mineralization in the form of pyrites, but often exhibiting characters essentially the same as the country rock. Such reefs can, generally speaking, be satisfactorily developed only by strictly following the pay values. They are not true reefs in the strict sense like, e.g., the Theta Reef at Pilgrims Rest. This type of ore deposition is seen in many mines and is often characteristic of a locality within the contact belt, whether on the northern or southern

edge of the Barberton Mountain Land. Reefs of this class are found in the Three Sisters, Sheba, Fairview, Victory Hill, Clutha, Fortuna, Golden Crescent, Agnes, Mount Morgan, Pigg's Peak, Wyldsedale, Exile, Forbes Reef, Entente, and Consort Mines, but this probably does not exhaust the list. Sometimes a true contact deposit of the arsenopyrite type is found—as in case of the well-defined Consort Reef. (b) *True Reefs*—that is, bands of usually highly quartzose auriferous rock with structurally well-defined foot and hanging walls, and with petrographical features distinct from the country rock. Such reefs are generally much thinner than the impregnation zones of the former class, are nearly always interbedded conformably with the country, and show a general resemblance in their mode of occurrence to South African gold quartz reefs in the narrow sense. Only comparatively few mines show ore of this type, i.e., The Alpine, Shebang, Durham Allan, Adamanda, and Barbrook Mines. To this group also belong the few highly inclined gold quartz veins found in the De Kaap Valley granite. Whereas in mines showing typical zones of impregnation the influence of the intrusive granite is strongly indicated—sometimes through introduction of acid intrusives, the ore deposition in case of most of the true reefs appears to be due to replacement of country rock by quartz from solutions carrying gold and iron in soluble form. Certain mines like the Pioneer and the Maid of the Mist cannot be easily classified according to the mode of origin of their ore, which may be independent of the intrusion of the granite. Similarly, it is not certain whether, in the Worcester Mine, the thick body of auriferous quartz is of aqueous or igneous origin, probably the latter. Outside the areas covered by the mines referred to, gold has also been found in the Steynsdorp and Komati River valleys, but here it is distributed more in isolated occurrences than along belts of country, the same remarks also applying to the gold deposits on the Kaapsche Hoop plateau. The numerous occurrences of younger basic intrusions, mostly post-Transvaal dykes, raises the question of their economic influence, since they are sometimes found in the underground workings, e.g., in the Sheba, Consort, Worcester, Pioneer, and Alpine Mines. The general conclusion of an examination of every important working and several old mines is, that this class of dyke has very little if any direct genetic significance. In the majority the view of the gold depending primarily on such basic intrusions is out of the question, if only on account of the scale on which the country is mineralized, e.g., in the Zwartkopje or Fairview Mines. A secondary influence, possibly leading to later enrichment, may have occurred locally—as perhaps illustrated by the eastern wall of the Union dyke in the fourth level of the Pioneer Mine. Anything corresponding to the genetic influence of the Vaalhoek dyke north of Pilgrims is not so far definitely suggested anywhere in the Barberton district—at any rate in so far as mines now working are concerned—with the possible exception of the Barrett's Berlyn Mine. An important exception must be made in case of the acid dykes and sheets, which are most probably intrusive offshoots of the older granite. They act as ore bringers and are intimately connected with the distribution of zones of impregnation as illustrated by the old section of the Pigg's Peak Mine.

(To be continued.)

* From Memoir No. 9 of the Union Geological Survey.

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THE FEBRUARY GOLD OUTPUT IN DETAIL.

Decline Due to the Flooding of the Mines.

THE flooding of mines and the short month caused a big drop in the gold output of the Transvaal for February. The total was declared last week at 659,759 ozs., of the value of £2,802,477, the decrease compared with January being 54,423 ozs. and in money £231,176. The adverse factors are better reflected by comparison with the February month of the two previous years. February, 1917, output was 721,321 ozs., representing £3,063,976, and the 1916 month yielded 753,549 ozs., of the value of £3,201,063. The Witwatersrand mines returned last month 637,571 ozs., a decrease compared with January of 56,620 ozs. There is only one exception to the long list of decreases, and that is the Ferreira Deep, which comes in with a fairly normal return and showing an increase in value of £17,505 on the previous month, when it will be remembered, falls of ground stopped hoisting in No. 1 shaft. The group profits for February amounted to £582,617, a decrease of over £100,000 on the January figure. The outside districts returned 22,188 ozs. in February of a value of £94,248, an increase of 2,197 ozs., representing £9,330. The increase is due to the return of the final clean-up at the Nigel, at which operations have now ceased. The aggregate totals of the output are:—

Total output	...	...	...	659,759 ozs.
Value	...	...	...	£2,802,477
Decrease	...	...	...	54,423 ozs.
Value	...	...	...	£231,176
Witwatersrand	...	...	...	637,571 ozs.
Value	...	...	...	£2,708,229
Decrease	...	...	...	56,620 ozs.
Value	...	...	...	£240,506
Outside Districts	...	...	...	22,188 ozs.
Value	...	...	...	£94,248
Increase	...	...	...	2,197 ozs.
Value	...	...	...	£9,330
Stamps	...	...	...	9,045
Increase	...	...	...	60

INDIVIDUAL RETURNS.

	Value.	Increase.	Decrease.
Aurora West	£14,302	—	£2,978
Bantjes Cons.	20,780	—	4,192
City and Suburban	34,504	—	4,974
City Deep	114,786	—	8,589
Cons. Langlaagte	51,049	—	4,906
Cons. Main Reef	66,932	—	8,257
Durban Deep	36,063	—	514
E.R.P.M.	141,590	—	6,749
Geldenhuis Deep	56,113	—	5,560
Ginsberg	11,550	—	1,673
Glencairn	12,301	—	387
Government Areas	154,477	—	7,192
Knight Central	26,557	—	2,340
Langlaagte Estate	44,954	—	4,022

	Value.	Increase.	Decrease.
Meyer and Charlton	28,617	—	15,912
Modder B.	86,522	—	12,739
Modder Deep	83,566	—	4,664
New Goch	14,757	—	1,074
New Heriot	13,011	—	7,021
New Kleinfontein	68,299	—	8,156
New Modder	124,539	—	6,193
New Primrose	13,865	—	1,941
New Unified	9,201	—	3,394
Nourse Mines	48,254	—	1,364
Princess	24,025	—	2,498
Robinson	40,944	—	6,648
Roodepoort United	27,126	—	5,165
Rose Deep	58,334	—	6,784
Van Ryn Deep	92,846	—	5,124
Van Ryn	35,061	—	3,292
Village Main	34,156	—	1,459
West Rand Consolidated	30,235	—	6,232
Witwatersrand	37,958	—	3,886
Wolluter	32,387	—	6,129
Crown Mines	195,094	—	18,647
Durban Roodepoort	10,721	—	425
Ferreira Deep	69,455	£17,505	—
Geduld Proprietary	58,415	—	1,002
Jupiter	21,485	—	1,801
Knights Deep	69,476	—	3,343
Randfontein	173,493	—	23,894
Robinson Deep	60,853	—	4,282
Simmer and Jack	55,063	—	7,642
Simmer Deep	38,072	—	965
Village Deep	60,003	—	5,191
Wit. Deep	30,469	—	6,044
Brakpan	87,198	—	7,488
Luipaardsvlei	18,388	—	1,967
Springs	63,427	—	3,691
Miscellaneous	4,056	377	—

OUTSIDE DISTRICTS.

Nigel	12,989	12,989	—
Sub Nigel	23,320	—	2,290
Barrett	641	—	94
Sheba	5,743	—	280
Glynn's Lydenburg	5,638	—	981
T.G.M.E.	23,503	—	739
Miscellaneous	22,364	725	—

LABOUR FIGURES.

The number of natives employed at the last day of the month by the W.N.L.A. and contractors were:—On gold mines, 170,531; on coal mines, 11,841; on diamond mines, 4,620; total, 186,992. The figures for January were:—Gold mines, 172,740; coal mines, 11,695; diamond mines, 4,593; total, 189,028.

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THE WEEK IN THE SHAREMARKET.

Recovery of Government Areas—Runs on African Farms—Leeuwpoorts and Zaaipplaats.

At the opening on Saturday Zaaipplaats were again in demand with sales up to 13s. 10d. At the call business was almost at a standstill, only seven stocks being dealt in, and these in limited quantities. Springs Mines were the turn harder, while Sub Nigels and Government Areas both came easier to the same degree. No quotations were made for Modder East Options. Modder Bs. went weaker. Mines Selections and Brakpans were both better. In the course of the morning Zaaipplaats eased down to 13s. 6d. Government Areas were largely dealt in at prices varying from 73s. 6d. to 74s. On Monday morning Zaaipplaats had another run which brought them up to 14s. 3d., and at the call they gained a further 3d. Sakalavas improved to 11s., after their recent drop. Business was again restricted. The Modder lot were unchanged, Leeuwpoort Tins advanced, Springs receded, the remainder being unchanged. Zaaipplaats rose to 15s. in the afternoon, closing at 14s. 9d. Modder Easts were weaker at 21s. 6d. There were sales of City Deeps at 57s. and Village Deeps at 17s. 6d. Tuesday opened firm, with Springs, Government Areas and Van Ryn Deeps all at best. Zaaipplaats were done at 15s. 2d. At the call there was no change, the most noteworthy features being advances in New Eland Diamonds and Leeuwpoorts. Modder Easts and their options were in poor demand, and the three-year options weaker. After the call Leeuwpoorts were pushed up to 23s., but came back to 22s. sellers. African Farms, in sympathy, reached 11s. and lost 3d. later. The market eased off somewhat at the close with the exception of Van Ryn Deeps, which made 72s. The features of the opening on Wednesday were Leeuwpoorts, African Farms, Rooibergs and Zaaipplaats; the first three with substantial advances, which were maintained at the call. The chief stocks were all firm, with the exception of Modder Easts, which again eased off. After the call there was active dealing in Leeuwpoorts. The stock first fell to 22s., then through various gradations rising to 23s. 9d. and finishing at the first figure. African Farms went somewhat easier; Modder Easts came down to 21s. Government Areas at 75s. showed a further improvement. Springs improved to 70s. 9d. On Thursday morning Government Areas were again in demand at 76s. buyers, thus recovering to the full the price at which they stood before the scare. Zaaipplaats were dealt in at 14s. 9d. At the call Government Areas made another upward point. The market generally was strong, notably in Springs Mines, Van Ryn Deeps and New Modders and Eland Diamonds. A selling offer of 2,000 Modder Easts was made at 21s. 6d. but not taken. The business in outside stocks during the week consisted of Sales: Sakalavas, 10s. to 12s. 6d.; S.A. Alkalis, 70s. to 75s.; South Van Ryns, 10s. 6d. to 10s. 9d.; Henderson's Options, 1s.; Phoenix, 11d.; Romola Nigels, 5d. Buyers of Henderson's Estates at 5s.; Monteleos, 32s., 35s.

On Thursday afternoon Government Areas touched 77s. and Springs 72s., but both closed easier. S.A. Alkalis were bid to 80s. Modder Easts fell to 21s. Leeuwpoorts and Africans were both lower. On Friday morning the following changes in price were noted:—Sales: City Deeps, 57s. 3d.; Main Reefs, 13s. 9d. and 13s. 6d., and sellers; Government Areas, 76s. and 76s. 6d., ex London; Knight Centrals, 1s. 3d.; Leeuwpoorts, 22s. and 21s. 9d.; New Elands, 30s., and buyers; Kleinfonteins, 14s. 3d.; Nourse Mines, 18s. 6d.; Pretoria Cements, £5 13s. 6d.; Springs, 71s. 6d., and buyers; Transvaal Consolidated Lands, 13s. 6d.; Van Ryn Deeps, 72s. 6d.; Zaaipplaats, 11s. 6d. Buyers and sellers: African Farms, 10s. 6d.—10s. 10d.; Anglo-Americans, 30s. buyers; Brakpans, 90s. 6d.—92s.; Daggafontein Options, 8s.—8s. 6d.; Modder Easts, 21s.—21s. 6d.

	Fri. 8th.	Sat. 9th.	Mon. 11th.	Tue. 12th.	Wed. 13th.	Thurs. 14th.
Breyten Collieries	—	11 0*	—	11 6*	11 3*	—
Brick and Potteries	5 6†	5 6†	—	—	—	—
Bushveld Tins	0 7*	0 6*	0 6*	0 6*	0 7*	0 7*
Cinderella Cons.	2 10	2 10*	3 0*	3 0*	—	3 0*
City and Suburban	14 0†	11 0†	13 3*	14 0†	—	—
City Deeps	57 0*	57 0*	57 0*	57 6	57 6*	57 0
Cloverfield Mines	9 1*	9 1*	9 2*	9 2*	9 0*	—
Clydesdale Collieries	11 6*	15 0*	15 0*	14 0*	15 0*	14 6*
Concrete Construct.	3 9*	3 9*	—	3 6*	—	—
Con. Investments	19 0*	—	—	19 0*	—	—
Con. Langlaagtes	15 0*	15 0*	15 0*	15 6*	15 0*	—
Con. Main Reefs	12 6	12 6*	12 6*	12 9*	13 6	13 0*
Con. Mines Select.	27 6s	28 0*	28 0*	27 6*	27 9*	28 9*
Crown Diamonds	1 6*	1 6*	—	—	2 0†	—
Coronation Frees.	0 7*	—	0 7*	0 7*	0 7*	0 7*
Crown Mines	36 0†	36 6†	36 0†	36 0†	36 0†	36 0†
Daggafontein Mines	24 9*	24 9	25 0†	25 0†	24 9	24 9
Do. Options	7 3*	7 2	7 3	7 3	7 3*	7 9*
Durban Road.	—	—	—	—	—	10 0†
East Rand Coals	1 11	—	—	—	1 11	1 11*
East Rand Deeps	0 9*	—	—	1 0†	0 9*	0 9*
East Rand Minings	17 3†	17 3†	17 3†	17 3†	15 0*	17 3†
East Rand Props.	5 3*	5 6*	5 6*	5 6*	—	5 6*
Eastern Golds	1 0*	1 0*	1 0*	1 0*	1 0*	1 0*
Ferreira Deeps	—	—	—	—	—	10 0*
F. Smith Diamonds	3 1*	3 0*	3 1*	3 1*	3 2	3 1*
Geduld Props.	40 6*	41 0†	40 0*	41 0†	40 0*	40 6*
Glencairns	1 3*	1 3*	1 3*	1 3*	—	1 3*
Glencoe Collieries	8 0*	8 0*	8 0*	8 0*	8 0*	8 0*
Glyn's Lydenburgs	17 6†	17 6†	17 6†	15 6*	15 6*	15 6*
Government Areas	73 6	73 3	73 9	73 9†	74 0	76 3
Jupiters	4 3*	4 3*	4 3*	4 3*	4 3*	4 3*
Klerksdorp Props.	1 11*	2 0*	—	2 0*	2 0*	—
Knight Centrals	4 3*	4 3*	4 5	4 3*	4 3*	4 4*
Knights Deeps	5 0*	—	5 0*	5 0*	—	5 0*
Lace Props.	12 0*	12 3*	12 0*	12 0*	12 0*	12 6
Langlaagte Ests.	—	—	—	—	—	15 0
Leeuwpoort Tins	18 6*	18 0*	19 0*	20 6	23 0	22 0
Lydenburg Farms	8 7	8 4	8 3	8 1*	8 4	8 6
Main Reef Wests	2 6*	2 8*	2 6*	2 6*	2 6*	2 7*
Middelvel Est.	1 0*	1 1*	1 1*	1 1*	1 1*	—
Modder B.	158 0*	159 0†	159 0†	159 0†	160 0	159 0†
Modder Deep	142 0*	143 0†	141 0*	142 0*	142 6	142 0
Modder Easts	21 10†	21 9*	21 9*	21 7†	21 6	21 4½
Do. Ops. (3yrs.)	7 6*	—	7 3*	7 1*	7 0*	7 3
Do. Ops. (4yrs.)	8 4*	8 3*	8 4*	8 6*	8 4*	8 3*
Natal Nav. Colls.	19 0*	19 0*	19 0*	19 0*	19 0*	—
New Boksburgs	—	1 0*	1 0*	—	1 0*	1 0*
New Eland Diams.	29 9	29 0*	29 0*	30 0	30 0*	31 0*
New Era Cons.	—	—	—	9 4*	9 6*	9 6*
New Geduld Deeps	6 3*	6 3*	6 3	6 3*	6 4	6 5*
New Heriots	26 0†	—	21 3*	21 3*	21 3*	21 3*
New Kleinfonteins	13 3	13 3*	13 3*	13 9	13 6*	14 0
New Modders	462 6	462 6	460 0*	460 0*	462 6*	470 0
New Rietfontein	1 6*	1 6*	1 6*	—	1 6*	1 6*
New Unifeds	4 3*	4 0*	4 0*	—	4 0*	4 0*
Nigels	2 6*	2 6*	2 6*	2 6*	2 6*	2 6*
Nourse Mines	18 6*	18 6*	18 6*	19 0†	18 6*	18 6*
Pretoria Cements	112 6	112 6*	112 6*	110 0*	110 0*	112 6*
Princess Estates	2 6†	—	2 0*	2 0*	2 0*	2 0*
Rand Collieries	3 0*	3 0*	3 0*	3 0*	3 0*	3 3*
Rand Klips	9 7*	9 8*	9 6*	9 7*	9 7*	9 6*
Rand Nucleus	1 3*	1 3*	—	1 3*	1 5†	1 3*
Rand Select. Corp.	87 0†	87 0†	87 0†	85 0*	84 6*	85 0*
Randfontein Deeps	3 9*	3 10*	—	3 9*	3 10*	3 9*
Randfontein Ests.	13 3*	13 3*	13 3*	13 3*	13 3*	13 3*
Roberts Victors	—	10 0†	10 0†	10 0†	10 0†	10 0†
Rooibergs	9 1*	9 4*	9 6	9 6	10 0*	10 0
Roodepoort Untds.	—	—	—	5 6†	—	5 6†
Ryan Nigels	3 0†	3 0†	2 6*	—	3 0†	2 9*
Simmer Deeps	—	2 0*	2 0*	2 3*	2 3*	2 0*
S.A. Breweries	—	26 6†	26 6†	26 6†	26 6†	26 0†
S.A. Lands	5 11	5 10*	5 10	5 10*	6 0*	6 1
Spring Mines	69 9.	70 0*	70 0	70 2	70 0*	71 0
Sub-Nigels	23 10½	23 6*	23 6	23 7½	23 9	23 0
Swaziland Tins	27 6†	—	26 6†	—	—	—
Transvaal Lands	12 9*	—	13 0*	14 0†	14 0†	14 0†
Trans. G.M. Ests.	13 0*	13 3*	13 0*	13 0*	13 0*	13 0*
Van Ryn Deeps	71 6	71 3*	71 3*	71 6*	71 9	72 0
Village Deeps	16 6*	16 6*	17 0*	17 0*	17 6	16 9
West. Rand Ests.	—	—	2 0*	2 0*	2 3	2 0*
Witbank Collieries	40 0*	45 6*	45 6*	45 6*	45 0*	45 0*
Witwatersrands	—	—	—	—	26 6†	26 0†
Wit Deeps	—	6 9*	7 3	7 6	7 6	7 0*
Wolhuters	5 0*	5 6	5 3*	5 0*	5 3*	5 3*
Zaaipplaats Tins	13 9*	13 10	14 6	15 1	15 0	14 9
Union 5 per cent.	£103½	£103½*	£103½	£103½	£103½†	—
Standard Bank	—	—	£10½*	—	—	£10½*

*Buyers. †Sellers. (Odd lots. bEX London.

	Fri. 8th.	Sat. 9th.	Mon. 11th.	Tues. 12th.	Wed. 13th.	Thurs. 14th.
African Farms	10 2	10 0*	10 1	10 5	11 2	11 0*
Anglo-Amer. Corp.	28 9*	—	28 9*	28 9*	28 9	—
Apex Mines	6 7*	6 6*	6 0*	6 6*	6 9†	—
Bantjes Con.	3 6*	3 8*	3 8	3 6*	3 8	3 9*
Brakpan Mines	90 0*	92 0	—	91 0*	90 6*	90 0*

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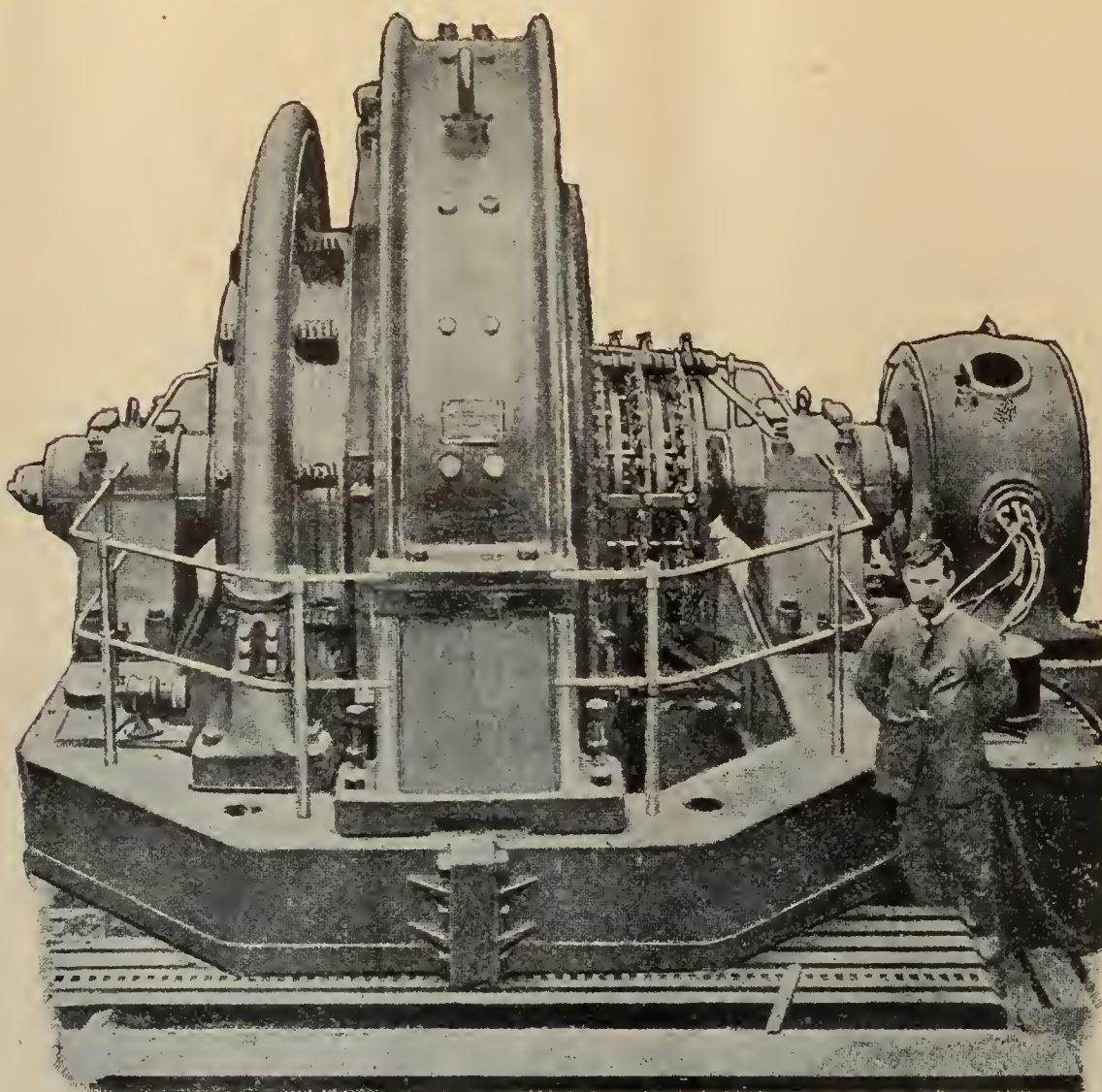
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OFFICIAL REVIEW OF MINING CONDITIONS.—IX.

Extracts from Reports of Inspectors of Mines.

From the annual report of the Orange Free State Inspectorate (Mr. G. E. B. Frood), the Government Mining Engineer extracts the following:

In any case, for the prospecting and development so far done in new country, and the comparatively small area covered, the prospectors would appear to have been unusually fortunate in discovering so many rich patches right away, however small these patches may be. *Coal*.—The output for this year comes out at 762,576 tons, valued at £198,699, as against 727,553 tons, valued at £188,364, last year. This indicates a continuous and satisfactory improvement. One has also to note a continuous betterment in the conditions at the mines. At Cornelia, especially, the year has seen many desirable changes, and the practical conclusion this year of a large programme of surface construction has put everything above ground into very satisfactory condition. Underground, also, the new shaft has effected all the improvements in the ventilation that could have been expected or reasonably hoped for. The Clydesdale has for long now been a model mine and the same high standard continues to be maintained. There has been a welcome increase in the output from Vierfontein, with the start of the Kimberley mines and the increased demand for coal from there. At Groenfontein, however, it has not been found possible to continue working at a profit, owing mainly to failure in orders from the Klerksdorp district, and practically all output is suspended. *Gold*.—A company was started during the year to exploit portion of the old Vredefort diggings, but nothing has been heard of whether any success has been met with. *Prospecting*.—There has been a great increase in prospecting activity during the year, especially from the month of August onwards. Apart from the district of Winburg, to which attention has been attracted by the discovery of the Monteleo and other fissure propositions, most interest has centred in the districts affected by the discovery of payable diamonds in the alluvial gravels of the Orange River. During the year two samples of coal were submitted from different localities in the Eastern districts which both proved of unusually high calorific value for these parts, but an opportunity has not yet been found to investigate the occurrences. *Cement*.—At White's South African Cement Works at Ventersburg Road work has proceeded very smoothly, but the output has failed to meet the demand. The duplication of the plant has been completed, however, during the year, and the new portion will be brought into operation shortly, bringing the capacity of the whole plant up to about 1,400 tons per week. *Lime*.—Apart from the quarry in connection with the above, we are still without any lime works of any importance except that at Honingspruit. *Gypsum*.—We have numerous occurrences of gypsum in this inspectorate, but the deposits are mostly small and of indifferent quality. The only one that has so far come to notice that promises to become of first-class importance is that on the farm Vrede, about fifteen miles south-east of Boshof, worked by the Gypsum Supply Company. The deposit is of earthy character and requires a lot of cleaning, but some 1,600 tons have been supplied during the year to the cement works and are said to have averaged up to 95 per cent. pure. This particular product represents only a small proportion of the material broken, but it is believed that, with proper machinery, at least 50 per cent. of the whole deposit might be recovered of marketable grades. Assuming that the above percentage can be recovered throughout, there are already some millions of tons of gypsum in sight. The chief drawbacks so far have been the difficulties of transport to the railhead and the want of suitable machinery. The competition of small producers has also militated against production and may continue to do so for some time. *Buildings Stone*.—The demand appears to be still slack, and there has been little of our best stone called for. *Salt*.—This industry continues to be of great importance to this

Province, but unfortunately I have been unable to keep in touch with operations. The characteristic of the market has been for many years an excellent demand at poor prices, and I do not understand there has yet been any change for the better.

From the annual report of the Natal Inspectorate (Mr. J. E. Vaughan), the Government Mining Engineer extracts the following:—

Coal.—The output of coal increased materially, being 3,092,996 tons, as compared with 2,319,942 tons in 1915; the output for 1916 was a record for Natal, the figures for the past five years being as follows:—1912, 2,768,747; 1913, 2,922,549; 1914, 2,592,321; 1915, 2,319,942; 1916, 3,092,996. The price of Natal coal has risen, and in spite of the increase in the price of stores, the collieries must be benefiting considerably by the war. When the war is over it is certain that several new collieries will start; by-product works will be erected in several places, and there should be a big increase in the output of coke, so that the future for the coal and attendant industries is very hopeful. *The Natal Ammonium Company* continued the erection of the sulphate of ammonium plant and the development of the mine. Although delays in the erection of the plant occurred, due to irregular shipments owing to the war, the plant was completed at the end of November, and started up. For a new plant, the start was extraordinarily successful, although naturally minor adjustments had to be made. At the end of the year the plant was turning out 60 per cent. of its capacity, the amount was increasing daily, and early in the present year the full output of 400 tons of ammonium sulphate per month should be attained. When the plant was under erection, arrangements were made for its duplication, and it is now estimated that it can be duplicated at one-fifth of the original cost. The plant, as at present constituted, comprises eighteen producers, with gas and acid towers, and is producing ammonium sulphate of the highest quality. Mauritius sugar growers are taking, and will take, all the ammonium sulphate that it can produce, and at the present price of £18 10s. per ton this should ensure a handsome revenue for the company. The quality and nitrogen contents of the coal has maintained its original standard, and the mine is looking well, so that there is every reason to anticipate a successful future for the company. In addition to erecting the plant, a brick and tile works has been established; fire bricks of the best quality are made, and during the year 360,000 ring tiles alone were made for the gas towers. Practically no tar is obtained, so that there will be no other by-products. One-third of the gas is used for firing the boilers, and two-thirds of the gas, after the nitrogen has been extracted, is going

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to waste. It is a pity that this cannot be utilized for obtaining power, but the company has not lost sight of this asset, and it is hoped that other industries may be started in the neighbourhood so as to use this waste gas. Although no expense has been spared to obtain a thoroughly up-to-date plant, the company has been solicitous for the welfare of its employees. All the houses and quarters are built of stone, and between each block (four rooms) of single quarters, two latrines and a bathroom are provided. In addition to the usual comforts of a recreation hall, tennis courts, etc., an up-to-date hospital has been built, containing an operating theatre, maternity wards, and private wards. The whole property forms a model mining village, and the accommodation is superior to anything I have previously seen on the Rand or in Natal. Naturally the results obtained at the Natal Ammonium Company will be carefully watched, as coal equally suitable for the manufacture of sulphate of ammonia exists in quantity in the neighbourhood, and if this company is successful, and I have no doubt that it will be, other similar concerns will start sooner or later. At the start of the war there were only two collieries at work in the Vryheid area, while five—Hlobane, Natal Ammonium, Tendega, W. P. Austin, and the South African Coke Company—are now at work, and three more will start in the near future. Big developments are bound to take place in the Vryheid district in the output of coal, coke, and by-products, and if Natal has in the past been disappointing as regards its metalliferous mines, it will make up for this by the increased output of coal in the future. *Gold*.—The output for the year was 314,600 ounces, as against 2,460,842 ounces for 1915. Practically the whole output was produced from Zululand, and I can only repeat

my previous opinion that Zululand gold mines hardly ever get a fair chance, and that given competent men, a small capital, and harmonious working, payable mines on a small scale would be in operation. Though nothing big has yet been discovered in Zululand, there is no reason why it should not be, if prospectors would try some of the many areas which have not been prospected at all. *Mercury*.—Some samples of red schist were forwarded for analysis in the hope that mercury was contained in them; these came from Zululand, the Drakensberg, and Greytown, but no mercury in payable quantity was present. Native mercury in this schist was obtained to the extent of about 5 lbs. by a prospector who panned samples of it on Sir Charles Saunders' property. *Coke*.—The following companies produced coke during the year: Vryheid Coke Company, Natal Navigation Colliery, and St. George's Colliery. There is a great demand for Natal coke, and it is easy to get orders for all that is produced. The coke is of excellent quality, and compares well with the imported article; and there is no reason why Natal should not supply the entire demand of South Africa, and thus do away with the imported article altogether. *Briquettes*.—The briquette factory at Durban, belonging to the Natal Navigation Colliery, continued making experiments in the manufacture of briquettes. At the end of the year it was thought a satisfactory mixture had been obtained, and it was hoped to turn out 3,000 tons a month in the coming year. The dross for the briquettes is obtained from the Natal Navigation and Glencoe Collieries, and the pitch is imported from England. *Oil and Oil Shales*.—The Cape-Cairo Company did nothing, and have relinquished practically all the ground held by them.

(To be continued.)

February Company Registrations.

- 5433 Newtown Livestock Auctioneers, Ltd.—154 Pim Street, Newtown, Johannesburg; capital £6,000.
- 5434 Hamilton House, Ltd.—c/o Friedman & Foy, Ltd., Pim's Building, corner Market and Kruis Streets, Johannesburg; capital £5,000.
- 5435 M. D. Maal & Sons, Ltd.—65a De la Rey Street, Vrededorp, Johannesburg; capital £500.
- 5436 Premier Box and Trunk Manufacturers, Ltd.—127 Market Street, Johannesburg; capital £2,100.
- 5437 The Graspan Ranching Syndicate, Ltd.—125 New Stock Exchange Buildings, Fox Street, Johannesburg; capital £3,000.
- 5438 Western Diamond Exploration Syndicate, Ltd.—125 Stock Exchange Buildings, Fox Street, Johannesburg; capital £6,000.
- 5439 Huggins & Co., Ltd.—Room 209, Consolidated Building, Johannesburg; capital £5,000.
- 5440 Dawood & Dawood, Ltd.—c/o Lorentz and Barber Streets, Indian Location, Pretoria; capital £500.
- 5441 Northern Transvaal Auctioneering Co., Ltd.—Mare Street, Pietersburg; capital £10,000.
- 5442 Rand Office and Shop Furnishing Co., Ltd.—31 Pritchard Street, Johannesburg; capital £1,000.
- 5444 Alli & Sons, Ltd.—c/o Main and Rex Streets, Nylstroom; capital £500.
- 5445 Abba, Ltd.—c/o Trichardt and Kruger Streets, Louis Trichardt; capital £500.
- 5446 John Spencer & Co., Ltd.—111 Market Street, Johannesburg; capital £10,000.
- 5447 The Township Bottle Store, Ltd.—c/o Second Street and Third Avenue, Witbank; capital £3,000.
- 5448 New State Areas, Ltd.—No. 605, sixth floor, Consolidated Buildings, 86 Fox Street, Johannesburg; capital £1,500,000.
- 5449 Rand Coal Agency, Ltd.—7 Natal Bank Chambers, Market Street, Johannesburg; capital £1,000.
- 5450 Laher & Master, Ltd.—18 Kimberley Road, Bertrams, Johannesburg; capital £750.
- 5451 Moonstone Diamond Syndicate, Ltd.—3 and 4 Eloff Street, Johannesburg; capital £500.
- 5452 The Scala Theatre, Ltd.—13 and 14 Sacke Buildings, Johannesburg; capital £15,000.

FOREIGN COMPANY.

- 5443 Krone & Co., Ltd.—c/o Samuel Levy, 1 Winchester House, Loveday Street, Johannesburg; capital £15,000.

PROSPECTUS.

- 5438 Western Diamond Exploration Syndicate, Ltd.—Johannesburg; registered 20/2/18.

SPECIAL AND EXTRAORDINARY RESOLUTIONS.

- 5242 Phoenix Furnishing Co., Ltd., Johannesburg.—Destruction of books.
- 4502 Kane & Chapman, Ltd., Johannesburg.—Change of name.
- 4718 County Down, Ltd., Johannesburg.—Liquidation.
- 5253 Name Competition (Colt), Ltd., Johannesburg.—Destruction of Books.
- 4440 African Arcade, Ltd., Pretoria.—Increase of capital.
- 4880 Lazarns & Co., Ltd., Johannesburg.—Powers of directors.
- 1579 Rand Buildings Co., Ltd., Johannesburg.—Destruction of books.
- 3526 Het Centraal Agentschap voor Ko-operatieve Verenigingen, Beperkt, Johannesburg.—Alteration of Articles.
- 4910 The Bellevue Colliery Co., Ltd., Johannesburg.—Alteration of Articles.

NOTICES OF INCREASE OF CAPITAL.

- 4440 African Arcade, Ltd., Pretoria.—£3,000 to £7,500.
- 5117 Union Tin Mines (Roodewal Olifants River), Ltd., Johannesburg.—£8,000 to £8,500.
- 4434 White Limes, Ltd., Johannesburg.—£10,500 to £13,500.

THE FOLLOWING COMPANY HAS BEEN PLACED IN VOLUNTARY LIQUIDATION.

- 4718 County Down, Ltd., Johannesburg; capital 5,000.

NOTICE OF CHANGE OF ADDRESS.

- 4747 Madressa Anjuman Islamia of Kholwad.—c/o Eleventh and De la Rey Streets, Vrededorp, Johannesburg.
- 4748 Swaziland Minerals, Ltd.—43 Estcourt Buildings, Pritchard Street, Johannesburg.
- 4741 Cajee & Bhabha, Ltd.—38 Market Street, Krugersdorp.
- 4926 Cajee Bros., Ltd.—38 Market Street, Krugersdorp.
- 4914 Bhushav Bros., Ltd.—27 Commissioner Street, Krugersdorp.
- 5017 Sullivan Music Studios, Ltd.—90, 91, 92, 93 Sacke's Buildings, Joubert Street, Johannesburg.
- 5422 Rand Malt and Produce Co., Ltd.—58d Becker Street, Newtown, Johannesburg.
- 5407 Wings, Ltd.—7 Meischke's Buildings, corner Harrison and Market Streets, Johannesburg.
- 3406 Rand Litho Co., Ltd.—1-3 Loveday Street, Johannesburg.
- 4279 Truda's Band and Messina Orchestra, Ltd.—313 Schubarth Street, Pretoria.
- 3831 Ornamental Furniture Co., Ltd.—44 Plein Street, Pretoria.
- 4968 Co-operative Furnishers, Ltd.—151 Church Street, Pretoria.
- 3415 Turfontein Estates, Ltd.—c/o Douglas Christopherson, Consolidated Goldfields Buildings, Simmonds Street, Johannesburg.

Engineering Notes and News.

THE PROGRESS OF INDUSTRIAL RESEARCH IN SOUTH AFRICA.

Review of Recent Activities.

At the last meeting of the South African Institution of Engineers Mr. Bernard Price (Past President) said the annual report of the Scientific and Technical Committee would shortly be printed and published, and this would supply full information as to the work completed and in hand. He would like, however, to refer to certain general aspects of the Committee's activities. He regretted that the item "Industrial Research" appearing each month on the Institution's agenda had not called forth discussion, because the Committee had hoped that members would submit useful suggestions from time to time. It would be recollected that the Committee was appointed as a result of recommendations made to the Government by the Research Committee, a body representative of all the scientific and technical societies in the country. At the time of its inception much prominence was being given to the question of industrial research, and it was under that heading that he was now asked to speak. The functions of the Committee, however, covered a much wider field, and he thought "Development of Resources" would better describe the scope of the Committee's aims. The Committee was afforded a unique opportunity, as it was called upon to advise the Government on the technical aspects of any question which concerned the development of the resources and products of the country. He had noticed that in public references to the Committee the opinion had been expressed that committees and commissions seldom produce any positive result. He agreed that the reports of committees and commissions in many instances were pigeon-holed and did not receive the attention they deserved. The Scientific and Technical Committee, however, was not appointed to consider some specific subject, but was continuously in existence as an advisory body with powers of initiation. It constituted a medium for focussing upon the numerous problems concerning the development of resources, the wealth of knowledge and experience existing in the country. Their greatest difficulty was to find the time demanded by such important duties. Each member of the Committee had his own professional work to carry out, and could not do more than allot his limited leisure hours to the Committee. It was realised that under these circumstances the organisation of the Committee should be extended in such a manner as would spread the work over a number of shoulders and enlist the assistance of Government officials and of authorities and experts wherever they might be found. With this object in view a number of sections had been constituted, the more important being the Chemical, the Engineering and the Agricultural Sections. In addition to this, certain standing committees had been appointed, and the sections and committees also formed sub-committees from time to time for dealing with specific questions. The Scientific and Technical Committee itself had, of course, appointed an Executive Committee, which dealt with general business during the intervals between the quarterly sessions. Following the procedure adopted by the Advisory Council of the Privy Council in London, the Union Government had appointed

the chief technical officer of each Government department to act as an assessor member of the Main Committee, and, in addition to this, the officials in charge of each division of a department had been appointed to act as assessors on sections and sub-committees dealing with their particular subject. Subject to the approval of the Government in each case, the committee and its subsidiary organisation was free to co-opt experts and authorities to reinforce the membership, and in making such appointments the Committee had co-operated with the various scientific and technical institutions concerned. In this connection he desired to express the thanks of the Committee to the Institution for the assistance it had rendered to the Engineering Section and certain of its sub-committees, especially those which had dealt with the classification of Customs statistics and the question of bye-product plant for abattoirs and fisheries. The arduous and valuable work of the representatives of the Institution on these committees had been much appreciated. Members would realise from his previous remarks that the Committee was developing into an extensive organisation, admirably constituted to assist the Government on technical matters as they arise, but he regretted to state that, as a result of delay in appointing the technical staff of the Industries Section of the Department of Mines and Industries, progress had been slow and was still being impeded. This delay was not due to any lack of appreciation by the Government of the urgent necessity for an executive technical organisation in the Department, but, largely as a result of the war, it had been most difficult to make a suitable appointment for the post of technical adviser to the Industries Section. Pending such an appointment, the Committee was burdened with executive duties which it was not intended to perform, and its available time was monopolised by work which should properly be undertaken by executive machinery in the Government Department. The more urgent matters in hand, such as an increased production of fertiliser and the production of glycerine, involved the prosecution of investigations at many centres, and although certain technical staff had been seconded for such work, the supervision of the investigations, which would normally be taken in hand by the technical officer of the Department, had necessarily fallen to the Committee. Then, again, many questions of technical detail, which would normally be included in the routine work of the departmental staff, had of necessity been passed on to the Committee for attention. Every effort was being made to relieve the Committee of these burdens, and it was hoped that in the near future it would be free to concentrate attention upon further important problems awaiting consideration. He would like to refer to one other aspect of the Committee's functions, namely, the co-ordinating influence which the Committee was in a position to exercise. It had always appeared to him that a huge organisation such as that controlled by the Government suffered for lack of central control. It was difficult to obtain complete co-operation and co-ordination of effort in any large undertaking, but he had been impressed with the special difficulties which beset a Government organisation from this point of view. While Government departments were desirous to co-operate, it was not easy to avoid

From the March issue of *The Journal of the South African Institution of Engineers.*

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a tendency to drift into water-tight compartments. He did not presume to say that the Committee could overcome this difficulty, but he felt that the establishment of advisory bodies such as the Industries Advisory Board and the Scientific and Technical Committee, having functions which covered such a wide field, afforded a means for the joint consideration of many matters which concerned more than one department, and he hoped that, with the assistance of the assessor members now appointed, an increased measure of co-ordination of policy and effort would be achieved. With regard to the programme of the Committee's work, members would recollect that certain preliminary measures were taken with the object of laying the foundation for future progress. The acceleration of the surveys of certain resources had been recommended, a conference of botanists was being called to consider the best means for organising a botanical survey, proposals for the stimulation of scientific research in Universities had been submitted, the establishment of a technological museum was under consideration, and numerous reports were being prepared by various authorities with the object of summarising existing knowledge in regard to a number of the country's resources, products and industries. When deciding upon the directions in which the stimulation of development was most urgently required, the Committee had been guided by the statistics of imports. Under existing conditions, when shipping was urgently required for war purposes, it was incumbent upon them to do everything possible to reduce the importation of food-stuffs by increased local production. The Agricultural Section of the Committee was endeavouring to investigate the various factors tending to restrict the production of staple foodstuffs, the best means for stimulating output and increasing efficiency. An increased supply of fertilisers was at the root of this matter, and, as members would know, a concerted effort was being made to secure the installation of bye-product plant at the various abattoirs and fisheries

with the object of preventing the existing wastage of valuable refuse. The Committee was doing its best to induce the various municipalities to erect these plants, being satisfied that such plants can be constructed in this country under satisfactory guarantees. He thought they had reached the stage where public opinion could assist by making it clear that it is in the interests of the country to utilise these bye-products and by urging that no obstacle should be allowed to prolong the existing waste. The question of glycerine had also become a very pressing matter. The services of certain investigators had been obtained, and their report would be found attached to the Committee's annual report. It was not certain at the moment whether the country would be given an opportunity of increasing the production of glycerine, but the Committee was of opinion that there were no technical difficulties in the way, and he hoped it might shortly be possible to assist the Imperial Government in the prosecution of the war by the establishment in South Africa of the necessary plant for utilising the available raw material. Glycerine was only a bye-product in the manufacture of soap, and as the main product could not be shipped under present conditions, the cost of producing glycerine was bound to be high, but it should not be higher than in other countries of origin of the raw materials, and as the glycerine could be consumed in this country double shipping would be saved. In conclusion, he desired to suggest to the Editorial and Papers Committee that a special effort be made to promote discussion on questions concerning the development of resources. It had been his intention to invite members to ask questions, but in view of the lateness of the hour he regretted that discussion must be deferred.

American Nitrate Manufacture.

The committee appointed by the United States Government to determine the most practicable method for the fixation of atmospheric nitrogen has decided in favour of synthetic ammonia, followed by oxidation to nitric acid. For the production of synthetic ammonia the De Jahn process is recommended. This is a new process, differing from the Haber especially in the use of a lower atmospheric pressure. The adoption of this process keeps the expense for the proposed plant at something less than £800,000, as the first cost is low, and the power requirements are less than in any of the several processes taken into consideration. The fixation of atmospheric nitrogen in connection with measures for national defence was taken up in June, 1916, when the Defence Act was passed, authorising an investigation. This has been conducted by technical committees. It was at first considered that costly hydro-electric developments would be necessary, as with the processes that have been employed in Europe, and the Government appropriated £1,000,000 for the enterprise. But the committee has concluded that, under the conditions existing in America, the most suitable processes are those requiring the least amount of power. The synthetic ammonia plant is to have a capacity of 60,000 lb. of ammonia per 24 hours. The plant for the oxidation of the ammonia to nitric acid and the concentration of nitric acid is to have a capacity of 24,000 lb. of 100 per cent. nitric acid per 24 hours. The plants are to be situated together, and near the new Government powder plant. The Government is advised to increase the production of ammonia and toluol by promoting the installation of by-product coke-oven plants.

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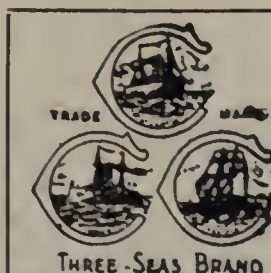
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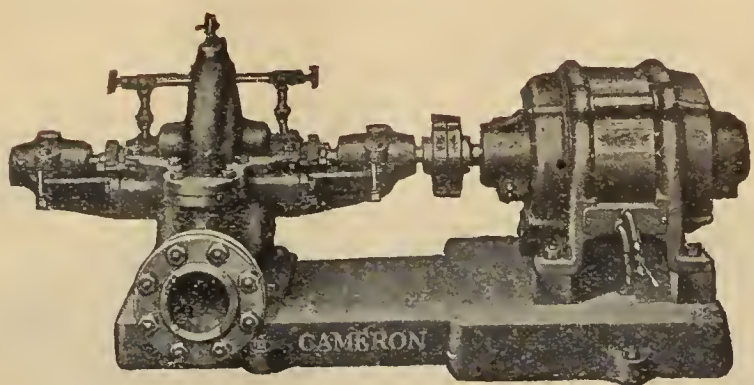
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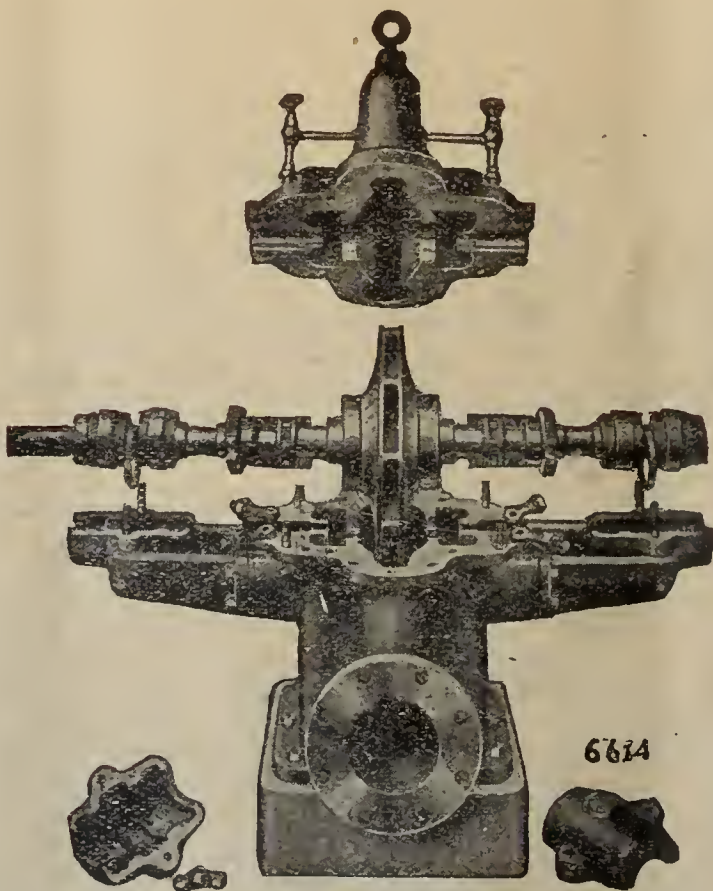
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THE WEEK IN THE MINING MATERIAL AND ENGINEERING TRADES.

American Exports Under Similar Conditions to British—S.A. White Lead Samples in Johannesburg—Arrivals from America in April—Builders' Hardware in Demand—Agricultural Requirements—Tar.

THE feature of the week has been the notice issued by the Controller of Imports and Exports at Pretoria in reference to the position of American exports. Enquiries were made at the Central Buying Office, where it was ascertained that this places American goods on the same basis and similar regulations to British goods. Therefore requisitions for American goods must go through the Central Buying Office from the mines and others controlled by that office, and for traders in general each priority office will be the medium. Here is the notice: "It is notified for general information that with a view to economy of tonnage and for the purpose of better control of manufacture in and export from America, the Government of the United States has prohibited the export of all goods to destinations outside the United States, except under licence. Priority recommendations will, therefore, be required for the manufacture in and export from the United States of all goods. Only goods required for war purposes or purposes of urgent national importance can be so recommended by the Controller of Imports and Exports, and applications for assistance in this direction must be made by importers in the Union of South Africa in the first instance, to Local Priority Committees, as in cases of applications for export from the United Kingdom."

COMMERCIAL EXCHANGE.

When at the Central Buying Office reference was made as to the paucity of orders from the mines, this soft impeachment was not denied, but the reply was that from now onwards and for the next three months more orders could be looked for. Even now there were fair orders in number if not for quantities. The new order as to the further control of American goods has had a disturbing effect both in the Exchange and throughout the mercantile community. Obviously any decided alteration as to the permit system has a jarring effect, as it means a delay before getting into the new order of things; and then there are the delays owing to railway transport and obtaining shipping, that seemingly cannot be avoided in any case. There is a very great shortage of white lead which may be relieved in the near future as samples of that manufactured at the Hatherley works near Pretoria have been received by the Central Buying Department. Writing about shortage, it has been ascertained from unquestionable authority that notwithstanding the acute scarcity of steel plates one firm in Johan-

nesburg has several hundred tons stowed away, as steel plates are always forthcoming at a price. As an antidote, the powers that be encourage the use of second-hand steel plates wherever possible. One peculiar thing is that no one seems to have any definite news about the enormous quantity of steel plates said to be coming from America. The big importing firms have not received any advices about steel plates having left New York as yet. A disturbing element has been thrown into mining circles now that Sir Harry Ross-Skinner has appeared amongst us again, as whispers from the mines intimate that a statement is expected shortly as to certain alterations taking place. Whether they be for the better or worse remains to be seen; in the meantime, the secrets, if any, are well kept. However, something is brewing, and an announcement can be expected shortly. This is mentioned, as mining merchants are obviously very much concerned in any movement connected with development or non-development.

IRON, STEEL, WIRE ROPES AND HARDWARE.

A parcel of some hundred tons of round iron bars is expected to arrive from America in the early part of April. This, when it does come, will be the first parcel of iron for a very long time from that quarter, as hitherto it has been mild steel. In addition to round iron, other kinds are also expected at the same time. Imported British small-sized bars of iron are acutely scarce. There is a small parcel of flat iron on offer at rather high prices, these prices, however, are those from the merchant to the user, and not from merchant to merchant, the difference being about half-a-crown per 100 lbs. The prices are for $1\frac{1}{4}$ in. x $\frac{1}{4}$ in., 82s. 6d.; $1\frac{1}{2}$ in. x $\frac{1}{4}$ in., 62s. 6d.; $1\frac{1}{2}$ in. x $\frac{1}{2}$ in., 85s.; 1 in. x $\frac{1}{2}$ in., 65s.; 2 in. x $\frac{1}{4}$ in., 62s. 6d.; also others. Iron values have an advancing tendency, which is due to several big enquiries, altogether apart from the mining industry. Notwithstanding this, business is on the dull side, although enquiries are numerous. No doubt the anticipated arrival from America have hung up speculation until some forecast can be made as to what arrivals are coming, and the prospective effect on our market, as it is unlikely that values will advance in the face of additional stock becoming available, especially in the present hum-drum state of things. Notwithstanding the lack of activity, those firms holding just the material wanted for outside orders are having occa-

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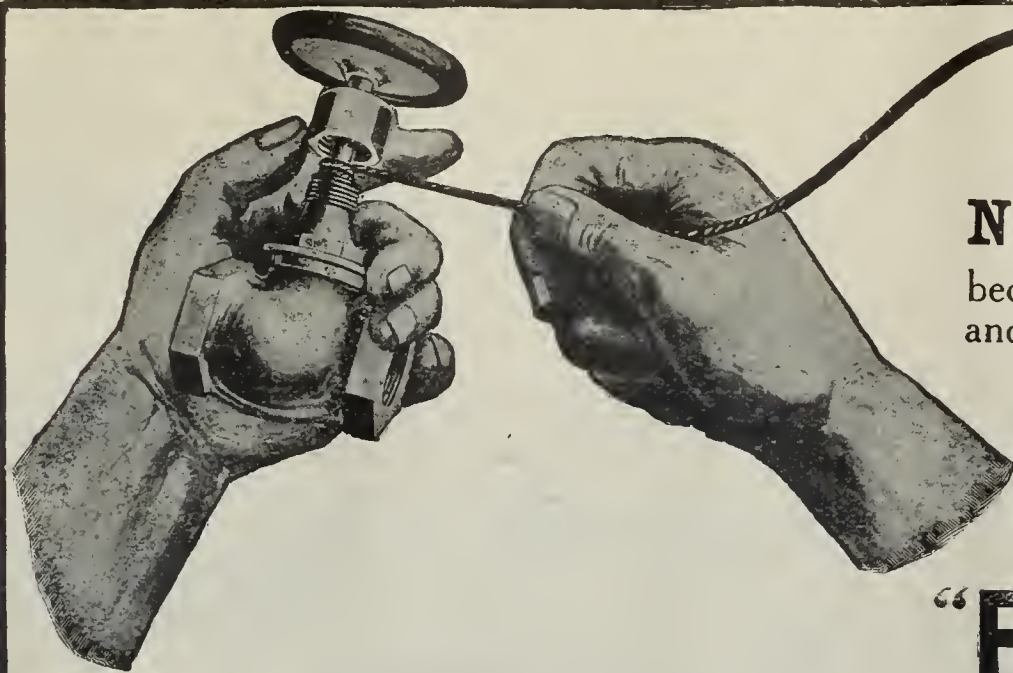
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sional spurts of liveliness. Hoop iron, especially in the sizes below one and a half inches, is unobtainable in town, according to a broker who could only obtain a very narrow kind used for binding packing cases. The same broker was in search of 7½ tons of 12 gauge wire, presumably for baling purposes, without result, at the time of the conversation. Wire ropes are exceptionally scarce, outside those held by the mines. There are a few second-hand flexible ones in the market and dealers are busy buying and selling.

THE TIMBER AND BUILDING TRADE

Deals are a farthing higher this week, and pitch pine has advanced from 8s. 6d. to 9s. 6d. per cubic foot, otherwise values are much the same. In connection with the South African timber trade a new sawmill has recently started at Richmond, Natal, and it is said that they are sending all their best woods to Durban for furniture making and the roughest kinds to Johannesburg for the mines. This fact is specially mentioned as it goes to prove that the mines are using S.A. timber wherever possible, and so saving the imported deals, etc., for building purposes. The idea of roofing iron being cheaper is rather chimerical, although one firm recently cleared out a lot of all sorts and sizes at 1s. 7½d. per foot, whereas the standard prices for the brand-new are from 1s. 10d. to 1s. 11d., according to the lengths, for the 24 gauge. By the way, it was mentioned that no more can be had from America, but this statement may be qualified by the new order requiring permits for galvanised iron (and nearly every other thing now) before being allowed to leave America. A visit was made to a firm that almost solely caters for builders' hardware, and it was marvellous to find what immense stocks they had on hand, if allowance is made for the times. The manager remarked that during the first fortnight in March they had been busier than for a very long while—say, twelve or eighteen months. The

price of porcelain baths had risen about a pound each, to £14½ for 6 ft. x 2 ft. 6 in., and £13½ for the 5 ft. 6 in. kind. Other values had not altered much this year. It was also mentioned that when architects and builders came it was more often a matter of obtaining just the right goods rather than the question of the price. The brick position is very much the same, although considerable progress had been made during February when the rains came again and threw things back into pretty much the old unsatisfactory state. The builders are shy in reference to taking on new contracts on account of the scarcity of bricks. The yards are asking from 65s. to 75s. for ordinary stock bricks, many of which are not too good on account of the rains; in fact, there are very few available of any kind. Naturally, if the rain would stop, followed by bright sunshine, the position would soon alter in a measure. There is an idea of putting on 3d. extra for lime, but there is nothing definite yet. Tiles are practically unobtainable.

OILS COLOURS, WHITE LEAD AND PAINTS.

A representative said that Johannesburg was an extraordinary place, for now that stocks were dear, and in parts acutely scarce or none, one would have thought business would be bad. But instead of that enquiries were never better, and any amount of business could be done providing one had the stocks; however, for the time being a lot of trading was in evidence on the stocks that are on hand. The scarcity in some lines, however, was checking the building trade; as for example a shop had to be thoroughly renovated, but the owner would not allow a start to be made unless he was assured that the requisite plate glass was actually available, and obviously this is not the only waiting job, as the entire absence of some things besides plate glass is sufficiently pronounced to stop many an improvement.

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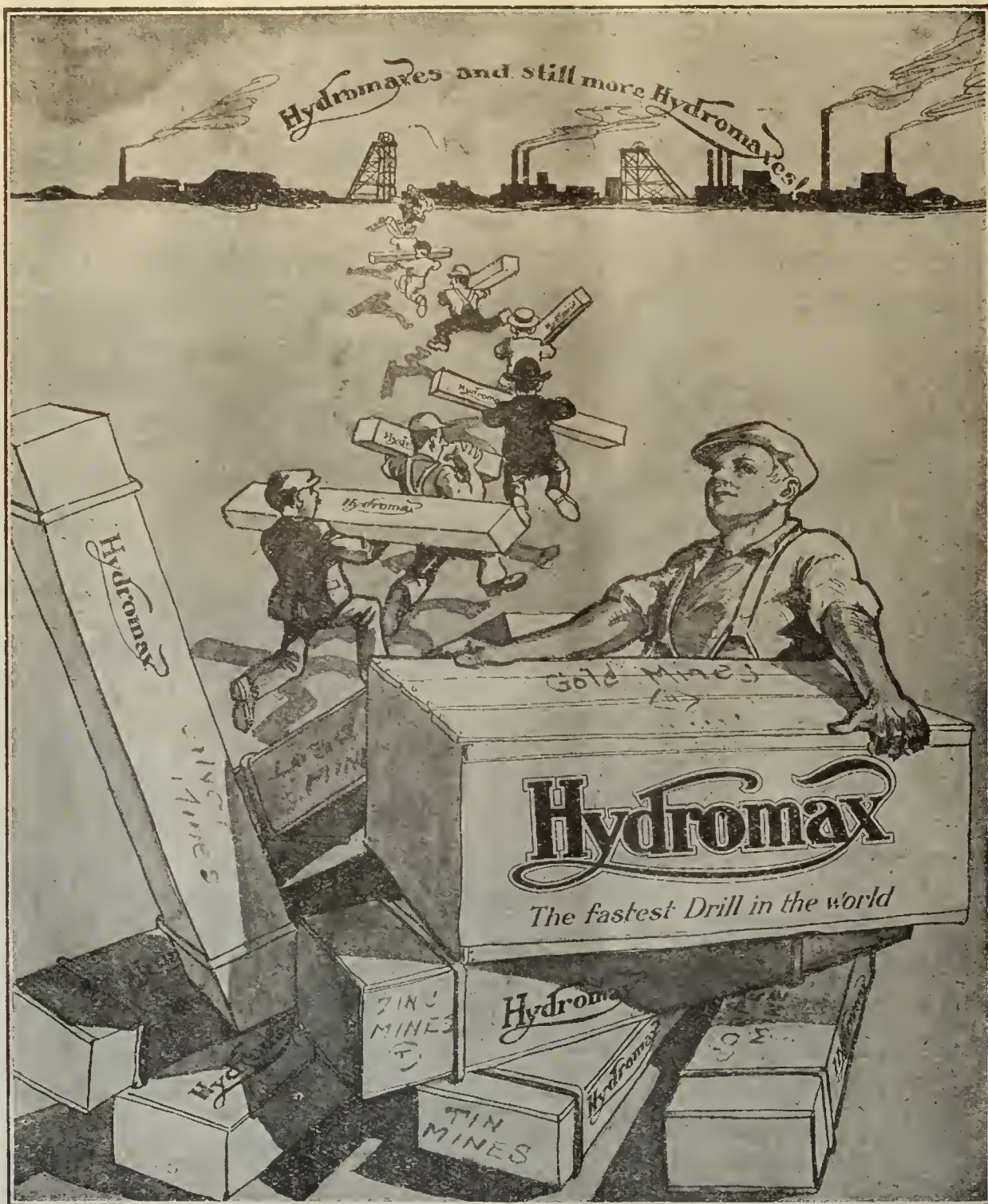
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which otherwise would be in full swing. Some of the distributing firms are so reduced in their white lead stocks that anything like big orders are turned down or have to be placed on the deferred shelf. The Reef travellers in the oil and colour business report poor business, as the usual reply from the mines is that it takes all their time to keep the mine and battery working without worrying much about a coat of paint. Olive oil is a little easier, for some can be had at 30s. per gallon, as a small consignment has recently been received from Spain. Cotton oil (the salad quality) is dearer at 107s. 6d. per case of 2-4s. In an interview with an importer of oils, he stated that there is a world's scarcity of oils and more economy should be used. The chief reason for the shortage is that very much more oil is being used, as it can hardly be conceived what amount is required daily for the millions and millions of axes and guns in the war, also the flying machine is a new factor for a very liberal consumption of oils, to say nothing about the immense number of motor cars requiring lubrication—certainly the question of oil supply is a big one.

AGRICULTURAL REQUIREMENTS.

Since a spell of a little finer weather the farmers have come into town and so created a welcome activity in the second-hand yards. Some of the farmers have shown their euteness by bringing quantities of pipes into the market; they are enabled to do so in consequence of the extra rains giving them more than ample water for present requirements. Obviously they hope to purchase cheaper when necessity again compels them to use pipes for water carrying. The forthcoming Easter Agricultural Show also has assisted business throughout the implement trade, both new and second-hand.

TAR.

A paragraph appeared in this journal in reference to South African tar being under offer at 1s. per gallon. The merchant who had the written offer from a company at a distance from Johannesburg, obtained a four-gallon sample, but when put to the required test it did not respond suffi-

ciently to close the deal. Since tar was placed on the British Government's prohibited list, the market has become more restricted from week to week. Still there is tar in South Africa, as a recent quotation came from Durban at 16s. for 5 gallon old measure drums, which represents 20s. for 5 gallons imperial measure. Our Municipality was recently offered a fairly good parcel, but the offer was declined on account of the price, which, however, was not disclosed. To-day's price in Johannesburg is 4s. per imperial gallon, and not very much to be had at that.

REVISED PRICE LIST

BUILDING MATERIALS—Timber: Deals, Baltic, 9 x 3, 1s. 7¹/₂d. to 1s. 8¹/₂d.; flooring, 4¹/₂ x 1¹/₂, and 6 x 7, 10d. per square foot; flooring, 4¹/₂ x 1¹/₂, 10¹/₂d.; and 6 x 1¹/₂, 10¹/₂d.; ceilings, 5 x 2, 6d. per square foot; pitch pine, 9s. per cubic foot; Oregon, 7s. to 8s. per cubic foot; clear pine, 1/2 in. x 12 in., 1s. 3d. per foot; 1in. x 12in., 1s. 6d.; teak, 17s. 6d. to 18s. 6d. cubic foot; shelving, 1s.; jarrah, 12s. 6d. cub. ft.; poplar, 1in. x 12in., 1s. 6d.; scantling, 1s. 7d. to 1s. 8d. ft. beaver boards, 5¹/₂d.; galvanised iron, 24 gauge, 6ft. to 10ft., 1s. 10d.; 11ft., 1s. 10¹/₂d.; 12ft., 1s. 11d.; 26-gauge, 6ft. to 8ft., 1s. 8d. to 1s. 9d.; 9ft. and 10ft., 1s. 9d.; flat galvanised, 24-gauge and 26-gauge, 100s. 100lb.; floor brads, 52s. 6d.; ceiling, 47s. 6d.; wire nails, 47s. 6d. to 60s. 100lb.; locks, rim, 66s.; mortice, 70s. per dozen; steel ceilings, 80s. to 85s.; roofing material, 1 ply, 40s.; 2 ply, 37s. 6d.; and 3 ply, 57s. 6d. per roll.

BRICKS, CEMENT, LIME, ETC.—Pretoria Portland Cement, 9s. 3d. bag; 8s. 3d. truck loads; lime, white, unslaked, 7s.; truck loads, 6s.; slaked, do., 5s.; blue, 3s. 9d.; plaster lime, 4s. 6d.; bricks, stock, delivered, 67s. 6d. to 70s.; wire cuts, 70s. to 75s.; pressed, 70s. to 80s. 1,000; road transport expensive when obtainable; salt glazed £15¹/₂, and white bricks, £35 per 1,000; roofing tiles, £17¹/₂ to £27¹/₂ per 1,000; glazed tiles, 17s. 6d. to 21s. 6d. per yard; paving cement tiles, 8s. 6d. per yard laid; reinforced concrete columns, 6ft. plain, 25s.; fluted, 30s.; fireclay bricks, £8¹/₂ to £14¹/₂, at kiln, per 1,000; clay chimney pots, 36s. to 70s., according to height, 12 in. to 18 in., per dozen.

OILS, PAINTS, LEAD, OXIDE, GLASS.—Linseed, raw and boiled, 11s. to 15s. per gall.; white lead, 1s. 3d. per lb. and 1s. 1d. in big lots; turpentine, 67s. 6d. 2/4 1-5 galls.; 10/1 5-6 imp. tins, 73s.; oxide in oil, 50s. per 100 lb.; dry oxide, 16s. to 16s. 6d.; linseed oil putty, 8d. per lb.; paints in tins, 1s. 3d. lb.; British plateglass, 1/2 in., 6s. 6d.; do., mirror, 7s. 9d.; window, 16 oz., 1s. to 1s. 6d. per foot; and fancy glass, 2s. per foot.

GREASE.—Imported, A.F. axle, £35; local, £23 to £25 per ton; tallow (local), 8d. per lb.; White Rose paraffin, 19s. 4d. 2/4 Laurel paraffin, 19s. 1d.; petrol, 35s. 6d. to 36s. 6d. 2/4 I.M.P.; motor oil, 7s. to 7s. 6d. per gallon; engine lubricating oils, 35s. to 45s. per case; cylinder, 35s. to 45s.

CHEMICALS.—Mercury, £40 75lb.; bichromate potash, 5s. 6d. lb.; chlorate, 4s. 6d. per lb.; permanganate, 12s. 6d. per lb.; alum, 6d. lb.; carbolic acid, 7s. 6d. lb.; borax, 110s. 100 lbs.; cyanide sodium, 2s. to 2s. 3d. per lb.; hypo, 9d. lb.; nitrate lead, local, 46s. 100lb.; litharge (assay), 70s. to 72s. 6d. (commercial), 58s. 6d. 100 lbs.; zinc sheets and blocks, 1s. 9d. lb.; locally-smelted zinc, 6¹/₂d. lb.; plumbago crucibles, 5d. per number; carbide, 112s. to 115s. 100lb.

ELECTRICAL GOODS.—Lamps, high voltage, British, Holland and American, 30s. to 36s. wholesale, and 48s. to 54s. doz. retail; carbon lamps, 18s. dozen; pure rubber flex, 6d. to 8d. yd.; 3/20 coils wire, 42s. 6d. to 45s.; ditto, 3/22, 27s. 6d.; 7/22, 60s.; 7/20, 80s.; 7/18, 105s.; tubing, 23s. to 25s. per 100 feet; keyholders, 4s. 6d. to 5s. 6d. each; round blocks, 3¹/₂in., 5s. 6d. to 6s. dozen; lamp holder cord grips, 13s. 6d. to 15s. per dozen; switches, 5 amp., 42s. to 48s. per dozen; British glass shades, 30s. to 40s. dozen; porcelain shackles, 15s. to 18s. dozen; do., bobbins, 15s. to 25s. per 100; cleats, 22s. per 100; P.O. insulators, 18s.

IRON.—Imported, 1/2 in. and 3/4 in. round, 9d. to 10d. lb.; 1/2 in. round, 67 to 70s. 100lb.; 1/2 in., 66s.; 3/4 in. round, 47s. 6d. to 50s. 100lb.; 1in. up, round, 35s. to 40s. 100lb.; square iron, 36s. and up, 100lb.; flat iron, small shoeing sizes, 50s. to 80s.; flat, average width and thickness, 36s. to 50s.; round iron, local, 1/2 in. upwards, 33s. 6d. per 100lb.; square iron, local, 1/2 in. upwards, 33s. 6d. per 100lb.; flat iron, average widths and thickness, 33s. 6d.; mild steel bar, 6¹/₂d. to 9d. per lb.; drill, 10d. to 1s. per lb.; steel plates, 70s. to 80s.; many sizes unobtainable; hexagon and cuphead bolts, 1/2 in. diameter, 2s. per lb.; 5-16in. diameter, 1s. 9d. per lb.; 3/4 in. diameter up to 3in. long, 1s. 9d. lb.; 3/4 in. dia., 1s. 6d., 3¹/₂in. and up long 1s. 6d. lb.; 1/2 in. dia. up to 2¹/₂in. long, 77s. 6d. 100lb.; 1/2 in. dia. and 2¹/₂in. up long, 75s. per 100lb.; 1/2 in. diameter up to 2¹/₂in. long, 85s. per 100lb.; 1/2 in. dia. 2¹/₂in. and up long, 60s. per 100lb.; 3/4 in. diameter, 2¹/₂in. and up long, 55s. 100 lb.; 1/2 in. and 1in. diameter, same price as 3/4 in. diameter; nuts, 1/2 in., 1s. 3d. per lb.; 1/2 in., 85s.; 1/2 in. to 1¹/₂in., 75s.; 1¹/₂in. and 1¹/₂in., 85s.; 1¹/₂in. to 1¹/₂in., 87s. 6d.; 2in. up, 92s. 6d.; washers, all 45s.; rivets, 3-16in., 1s. 6d. lb.; 1/2 in., 5-16in., 1s. 6d. lb.; 7-16in., 1/2 in., 1s. 3d. lb.; 1/2 in., 75s.; 1/2 in., 65s.; 3/4 in. up, 60s. 100 lb.; shoes and dies, 32s. 6d. to 35s., 100lb.; rails, £25 per ton; picks, 4lb., 40s. per doz.; shovels, 65s. to 70s. per doz.; drill hammers, 5¹/₂d. to 6d. per lb.; hammer handles (best American), 14in., 4s. 6d.; 24in., 10s.; 30in., 14s.; 36in., 16s. 6d. per dozen; metal, anti-friction knoxite, 11d. to 4s. and special prices per lb.

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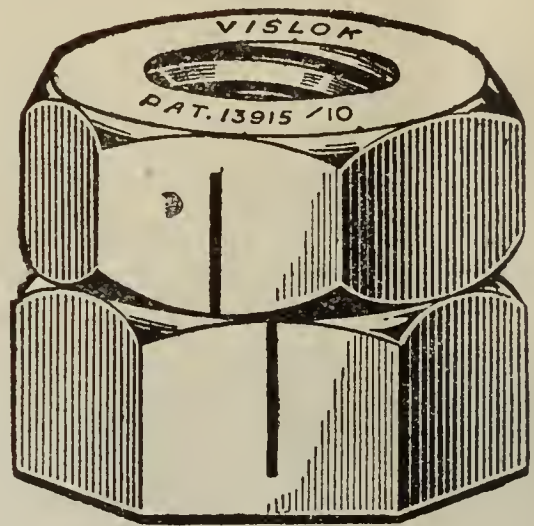


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The Week's Meetings.

CITY AND SUBURBAN.

The annual general meeting of shareholders of the City and Suburban G.M. and Estates Co., Ltd., was held on March 7 at the offices of the company, Bank Street, City. Mr. W. J. O'Brien, J.P., chairman of the company, presiding. There were present: Messrs. W. J. Shaw, L. Line, A. H. Hime, G. J. Macfarlane, C.M.G., A. O. Kufal, J. McAuslin, M.P.C., C. J. M. Bell, A. Eicke, Roy Hathorn, H. Hathorn, G. E. Greene, J. C. Templeton, F. Terry, D. M. Dixon, P. Salmond, and J. Weighton, secretary). The Chairman, in moving the adoption of the report and accounts, said: The working revenue of the year under review amounted to £527,077, equal to 34s. 4.8d. per ton milled, a decrease of £74,847, and 2s. 6.2d. per ton, compared with 1916. The expenditure, £367,606, shows an increase of £4,227 or 1s. 8.5d. per ton milled, while the profit earned, £159,472, reflects a decrease of £79,073. The abnormal expenditure due to the war has increased during the year, and this, together with a reduction in the tonnage milled of some 20,000 tons and the decrease in the yield already referred to, accounts for the reduction in the profits for the year.

INCREASED EXPENDITURE.

As regards the increase in the expenditure, the cost of stores has risen steadily during the year, while shorter hours and higher rates of pay to European workmen have also helped to swell the total. As an instance of the burden that the winning of gold has to bear, I may mention that prior to the outbreak of war, the cost of freight and insurance on rough gold amounted to roughly 7s. 6d. per cent., while to-day the charge amounts to 25s. per cent. Of course, the latter figure cannot be considered unreasonably high, having in view the great risks involved, but it is an instance of how the war has affected the cost of realising the gold the value of which remains the same to-day as in times of peace. The shortage of native labourers has also materially helped to affect detrimentally the result of operations. As you will see from the manager's report, the average number of "boys" employed during 1917 was 2,559 compared with 2,720 during the previous 12 months, a reduction of 161 natives, while during January of this year only 2,112 coloured labourers were on the company's register. The scarcity of native labour has not been peculiar to a few companies, but has been common to all the mines on the Rand. The matter has been mentioned in the Union Parliament, and the Government has taken tentative steps which may help to make good the shortage, and it is hoped that the outcome will be a substantial addition to the labour force and eventually a permanent source of supply to the Union. To revert to the accounts, you will notice that to the working profit a sum of £2,314, consisting of rents from the township and sundry receipts falls to be added, which with the balance of £22,518 brought forward from 1916 makes £184,303. Against this amount the following sums rank for deduction: Miners' phthisis compensation assessment, £2,241; capital expenditure, £4,325; and Union Government taxes amounting to £22,945, leaving a balance of £154,792. From this the two dividends declared during the year, amounting to in all 8s. per share, absorbed £136,000, the balance £18,792 being carried to 1918.

FINANCIAL CAUTION.

It will be noticed that the dividend distribution, in view of the reduction in

the profit, has been liberal, but at the same time the Board deemed it the soundest policy in these times of stress to keep a substantial balance in hand, having regard to the possibility of unforeseen contingencies arising at any moment that might make demands on the financial resources of the company. The balance sheet does not present any unusual features that call for special comment. It will be noticed that the Company still carries a substantial reserve of stores, and I may mention here that it participates with the other Rand companies in the arrangements made in regard to the pooling and distribution of supplies for the mines. The capital expenditure for the year amounted to £4,325, which almost completes the commitments to date. It is interesting to note that the sinking of the incline shaft has now been completed, total depth 6,948 feet, vertical depth 3,765 feet below the collar. The estimated tonnage of payable ore developed amounted to 131,600 tons as against 154,700 the previous year; 348,767 tons were mined, of which 9 per cent. was from Main Reef, a decrease of 14,695 tons, and the ore milled exhibits a decrease of 19,658 tons compared with 1916. As regards the difference in the tonnage milled you will notice that hoisting operations were suspended on several occasions owing to shaft troubles caused by pressure on the shaft pillars, which are being removed, and until that work is completed and the stoped area sand filled, the manager predicts that interruptions to hauling may occur from time to time. The ore reserves on recalculation now stand at 511,900 tons, value 7.7 dwts., a decrease of 90,300 tons and of 1.1 dwt. in value. I would direct the attention of shareholders to the interesting remarks of the consulting engineer on the importance of a plentiful supply of native labour in this regard.

FLOOD DAMAGE.

In consequence of the torrential rains that swept over the Witwatersrand early last month, the mine began to flood through percolation from the surface on the night of February 14th. Winding was completely suspended, and so rapid was the flow of water that men had to be brought to the surface, many of them finding their way out through the City Deep shaft. The water rose to between the 39th and 40th levels, the highest point reached being 135 feet below the 38th level. Hoisting operations were resumed on February 16. Further water troubles appeared about the 24th February from a similar cause, the water rising to 80 feet below the 38th station. Electric and other pumps were installed at various points, and with the willing work of the manager and staff the difficulties were overcome, and the position now is that the appliances in use can hold the water comfortably, it is being reduced daily, and at the moment the conditions may be considered almost normal. The effect of these troubles on the February returns is that the tonnage milled shows a shortage of 4,000 tons, gold recovered a decrease of 1,144 fine ounces, and the profit is reduced £1,882 compared with that of the previous month. At the end of 1917, 52 employees of the company were on active service at one or other of the various fronts, and it is with great regret that I must record that six of those who volunteered to assist the great cause of freedom have lost their lives, and their names: Messrs. F. J. H. Dixon, T. E. Eatwell, P. Lennon, R. M. McAlister, D. McKellar and J. H. Pitt, have been inscribed on the ever lengthening Roll of Honour. To their relatives we extend our respectful sympathy. To the ten who

have been wounded we offer our best wishes for a speedy and complete restoration to perfect health.

Capt. Lovell Greene, one of your directors, is still on active service in France. I have to record, with regret, the death of Mr. W. G. Izard, for many years a valued member of the London Committee of this company. On behalf of the Board, the Chairman expressed appreciation of the ability, foresight and energy displayed by the manager, Mr. Glyn, in his conduct of the affairs of the company in these difficult times: to the consulting engineer, Mr. Cazalet, whose ripe experience and knowledge of mining matters have been of great service to the company; to the Local Board, Johannesburg, and to the London Committee.

Mr. Roy Hathorn seconded the adoption of the report, which was carried without discussion.

Messrs. W. J. O'Brien, Leonard Line, and A. H. Hime were re-elected directors, and Mr. Francis Terry was re-elected auditor for the ensuing year.

THE NEW HERIOT.

The annual ordinary general meeting of shareholders of the New Heriot G.M. Co., Ltd., was held in the company's offices, Bank Street, City, on March 7. There were present: Mr. W. J. O'Brien, J.P., chairman of the company, in the chair, and Messrs. G. J. Macfarlane, C.M.G., L. Line, W. J. Shaw, R. H. Raw, M.P.C., G. E. Greene, J. C. Templeton, H. Hathorn, A. A. Roy Hathorn, D. M. Dixon, P. Salmond, A. Eicke, and J. Weighton (secretary). The Chairman, in moving the adoption of the report, said: In submitting to you the record of the operations of the company for the twelve months ended 31st December, 1917, you will not be surprised to see that the abnormal conditions consequent upon the war have had a detrimental effect upon the results obtained, and with your permission I propose to refer at no great length to a few points of interest in the working of the company as reflected in the statements now before you. Dealing with the revenue and expenditure first, you will observe that the result of working in the year under review has been less profitable than in the previous year. The working revenue amounted to £256,779, a decrease of £25,254 compared with 1916. The expenditure, £183,509, exhibits an increase of £2,983 over that of 1916, and it is noteworthy, but in view of the circumstances, not at all surprising, that the total amount is actually greater than that expended in any year previously. The increase works out at 1.1 per cent. milled, notwithstanding a reduction in the development outlay of £748. As a result of the fall in the yield and the increase in the expenditure, together with an appreciable reduction in the tonnage milled, the working profit, £73,270, shows a decrease of £28,237, as compared with 1916. In the year 1915 the manager estimated the extra war expenditure at £5,244; the following year the amount rose to £11,880, while in the year under review the outlay amounted to almost £16,000, a progression somewhat alarming in its proportions. As an example of the many and ever-increasing items which tend to diminish the profit, I may mention that in normal times the charge in respect of freight and insurance on rough gold exported for realisation amounted to 7.6 per cent., whereas to-day 25.1 per cent. must be taken into account for the same services.

PROFITS AND DIVIDENDS.

The working profit for the year and the sum received as rents together total £73,990. Of this sum, Union Government taxation absorbs approximately £11,129, while the assessment on account of miners' phthisis compensation, etc., takes £1,039. A further sum of £63,250 in respect of two dividends declared during the year amounting in all to 11/- per share, appropriates the balance of the profits and reduces the balance brought forward from 1916 to £119,132, which will be carried forward to 1918. As regards the dividend distributions, the decrease in the returns has of necessity reduced the amount paid to shareholders. The Board fully recognises the wisdom of caution in these parlous times; and ample provision for unexpected calls on the funds of the company was made when the rate of dividend was under consideration. Owing to the irregularity of the overseas mail service the final returns did not arrive at the usual time, thus delaying the issue of the warrants for the final dividend until the fourth week in January. The ore reserves have been recalculated as at 31st December, and now amount to 334,977 tons of an average value of 7.14 dwts. This represents a reduction of 142,790 tons, and of .46 of a dwt. in value when compared with 1916. On account of the increase in the working costs the pay limit has been raised to 5 dwts. per ton, which has had the result of excluding from the payable reserves 29,850 tons which were formerly included. The boundary pillars which will probably become available for stopping in time contain an estimated tonnage of 35,237 tons of 6.8 dwts., which are not included in the reserves. In addition to the reserves the consulting engineer states that considerable tonnage will be recovered by reclamation work in the older workings, while certain areas should yield some payable blocks on further investigation. The advantage which the company enjoyed last year in the matter of a plentiful supply of native labour no longer exists, and this year a shortage, in view of our requirements, has been experienced in common with all mines on the reef. The resourcefulness of the technical advisers of the company is once more demonstrated and the future working of this economical method of dealing with the rock from the upper levels will be observed with very great interest.

MINOR DAMAGE.

Following on the recent abnormal rains the water, through percolation, flooded the bottom of the main shaft, rising above the 8th level and submerging the pumps at that point. In consequence, the hauling of rock was stopped on the evening of the 14th February. Baling and pumping were resorted to, but progress in dewatering the mine was very much retarded through further heavy rains; however, on February 26th, the 8th level was recovered and the pumps, after necessary overhauling, were re-started on the following day. Mining operations and hauling of rock on a reduced scale are in progress on account of the water making in the mine being excessive and beyond the capacity of the pumps installed. Steps have been taken to cope with the water, but at the moment it is impossible to say when satisfactory conditions will be re-established and operations resumed on a normal scale. As a result of this unfortunate trouble you will not be surprised to hear that the tonnage milled for February amounted to 7,700 tons only, a decrease of 5,700 tons as compared with January, while instead of the customary profit I have to report a loss of £2,513. It will be apparent to you that the returns for March will also be adversely affected, but to what extent it is quite impossible to foretell. On behalf of the Board I wish to express our entire satisfaction with Mr. Warren's management of the company's affairs at the mine and our appreciation of the painstaking care

and energy which he has devoted to the solution of the difficult problems which have arisen from time to time. To our technical advisers, Messrs. H. Stuart Martin and P. Cazalet, we are indebted for their unremitting attention and skilful assistance, and our thanks are also due to the Local Board at Johannesburg and to the London Committee.

The Chairman's report was adopted without any discussion. The retiring directors, Messrs. G. J. Macfarlane, C.M.G., J. Waldie Peirson, and Lovell Greene, were re-elected, and Messrs. Loram and Baynes were re-elected auditors for the ensuing year.

LYDENBURG GOLD FARMS.

A meeting of shareholders of the Lydenburg Gold Farms Co., Ltd., was held on March 8 in Stock Exchange Buildings. Mr. R. Bowman presided. The Chairman said: As you will observe from the directors' report, the balance sheet and profit and loss account submitted to you, the position of our company is a very satisfactory one. The nominal capital still remains at £50,000. The liquid assets, consisting of the balance of the purchase price of farms sold, investments and cash, amount to over £20,000, from which, however, has to be deducted the sum of £1,831 in respect of unclaimed amounts owing to shareholders. During the year a net profit of £1,953 has been earned. The value of our farm Vlakkfontein is, I think I may say without fear of contradiction, continuing to increase owing to the satisfactory developments going on all around us. I refer particularly to the Daggafontein Mines to the north, the Sub-Nigel. Ltd. to the south-west, and immediately to the north of the latter the developments taking place on the property of the Southern Van Ryn G.M. Co., Ltd., whose claims extend to the western boundary of Vlakkfontein. In regard to the latter, the most recent information is to the effect that in the main shaft now being sunk the Nigel reef has been struck at a depth of 88 feet, showing over 13 dwts., over a width of 12 inches, and at 90 feet, 11.25 dwts. over a width of 16 inches. The importance of these satisfactory developments lies in the fact that the reef, which has been encountered at a very shallow depth, according to all available information, undoubtedly enters our farm Vlakkfontein. There is therefore every reason to expect that we shall be able to find the same reef on Vlakkfontein at more or less the same depth. In addition to this reef, there is the almost certainty of the reef worked on Daggafontein traversing Vlakkfontein, at, however, a considerable greater depth than the former reef. On the above facts it will be seen that the farm Vlakkfontein, which has a very large area consisting of more than 400 morgen, contains a very large claim-bearing area, and if the promised legislation dealing with the extension of mynpacht areas is passed by Parliament, as may reasonably be expected, the advantages accruing to this company are obvious. Whilst the developments on the adjoining properties during the past year might justify the expenditure of money in carrying on further prospecting operations on the farm Vlakkfontein, yet the directors have deemed it advisable not to proceed with such operations at the moment, but rather to await the further result of adjoining developments with a view to establishing more definitely the trend and value of the reefs now being worked by adjoining owners between the Daggafontein property on the north and the Sub-Nigel on the south-west. I can only again confirm what I have previously stated at last year's meeting of shareholders that in the farm Vlakkfontein our company owns an exceedingly valuable asset.

The report and accounts were adopted. Messrs. R. Bowman and G. C. Fitzpatrick were re-elected to the directorate. Messrs. G. R. Carpenter and J. T. Goldsbury were reappointed auditors.

EAST RIETFontein SYNDICATE, LTD.

The fourteenth ordinary general meeting of shareholders of East Rietfontein Syndicate, Ltd., was held in the Board Room, Consolidated Gold Fields Buildings, Simmonds Street, Johannesburg, on Friday, 22nd February, 1918. Present: Messrs. D. W. Rossiter (in the chair), W. S. Smits, S. B. Dowling, V. J. Ronketti, T. G. Suter, J. E. Kent, R. O. Stone, A. E. C. Hocking (transfer secretary), and A. C. Grant (secretary). There were represented personally and by proxy 9,623 shares out of a total issue of 25,000 shares. The Chairman having stated that the meeting was duly constituted, the secretary read the notice convening the same. Proceedings of the thirteenth ordinary general meeting of shareholders, held on 23rd February, 1917, were taken as read and confirmed. The directors' report and accounts, as printed and laid upon the table, were taken as read, and the secretary read the auditors' report attached to the balance sheet at 31st December, 1917. The Chairman, in moving the adoption of the report and accounts, said: The report and accounts are before you. It will be seen from the income and expenditure account that the revenue for the past year, namely, £1,003, being in respect of ground rents and rent from the pan, was £162 more than the total revenue for the previous year. Expenses, which have been kept down to a minimum, were only £266, being somewhat lower than for the previous year. The balance of income over expenditure was therefore £737, and the balance at debit of income and expenditure account has accordingly been reduced to £4,296 at the end of the year, as shown in the balance sheet. There is nothing else in the accounts that calls for comment, except to point out that during the year the surface rights of some 68 odd morgen were disposed of for £275, and the amount under the heading of "Property" in the balance sheet has been reduced accordingly. The whole of the farm is let to good tenants, the rent roll now being about £670 per annum, exclusive of the revenue in respect of the Pan. The question of sub-dividing the property into small holdings for agricultural purposes has been under consideration for some time past, and your Board of Directors has decided to afford tenants an opportunity of acquiring the surface rights—the syndicate's mining rights being, of course, fully safeguarded. The surveying of the farm is being proceeded with, and as soon as this work is completed your directors will be in a position to give full effect to the policy agreed upon. I now formally move the adoption of the report and accounts. The motion, having been seconded by Mr. V. J. Ronketti, was put to the meeting and carried unanimously.

It was proposed by Mr. S. B. Dowling that all the retiring directors, Messrs. D. Christopherson, J. Friedlander, H. Newhouse, W. S. Smits, Lieut.-Colonel F. Leslie Brown, D.S.O., and Sir E. H. Dunning, who retire from office in accordance with the provisions of the Articles of Association, be re-elected, and there being no other nominations, the Chairman declared these gentlemen duly elected. It was proposed by Mr. J. E. Kent, seconded by Mr. T. G. Suter, and carried unanimously, that the remuneration for the past year's audit be fixed at 15 guineas, and that the two retiring auditors, Messrs. Douglas, Low and Co., and Roberts, Hays and Co., be re-elected for the current year. This concluded the business of the meeting.

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Magnesite and the War.

Although the resilience of magnesite was known to mineralogists (says the *Mining and Scientific Press*), it was overlooked as a factor in construction until the Germans utilised it. In the early days of the war an American company operating magnesite mines in Austria obtained the use of a large number of Russian prisoners, paying them 17 cents per day, this being the cost of subsistence. By aid of these Russian prisoners the American company hastened to dig magnesite as fast as possible, filling boxes and barrels with the mineral, preparatory to shipment overseas; but the German submarine campaign, with the consequent scarcity of ocean freightage, spoiled the scheme; and the magnesite remained at the mine until the Germans seized it, having discovered that it would furnish splendid material for gun-emplacements, on account of its resilience and the quickness with which it sets—namely, in six hours, as compared with the six days required by ordinary cement when in large blocks. The Italians also are using magnesite for their gun-emplacements. Another new use for magnesite is in making flooring or "deck" for warships, the magnesite being laid upon steel on account of its imperviousness to moisture and heat, besides its resilience, which is a quality of greatest value in many forms of construction.

The Spitzkop Farm Gold Company owns 7,000 acres and a Government concession of the mineral rights. The ore crushed by the tributors for the year ended June 30 was 13,822 tons, giving an estimated yield of £11,471, equal to 16s. 7d. per ton. The total royalty for the year shows a reduction of £482, as compared with the previous year. Mr. John Spiers, at the request of his colleagues, visited the property, and negotiated an extension of the contract with the syndicate on modified terms. The revenue account for the year shows a net balance to credit of £192. Investments were increased during the year by the purchase of £400 Exchequer Bonds. The 4½ per cent. War Loan stock and Exchequer Bonds held by the company have all been since converted into the 5 per cent. War Loan, 1829-1947.

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(Incorporated in the Transvaal.)

NOTICE TO SHAREHOLDERS.

NOTICE IS HEREBY GIVEN that the Twenty-second Ordinary General Meeting of Shareholders in the above-named Company will be held in the Board Room, Fourth Floor, National Bank Buildings, Simmonds Street, Johannesburg, on Wednesday, the 29th day of May, 1918, at 11 a.m.

BUSINESS:—

1. To receive and consider the Statements of Account and the Reports of the Directors and the Auditors for the year ended 31st December, 1917.
2. To confirm the appointment of Sir Abe Bailey, K.C.M.G., as a Director of the Company, in place of Mr. J. H. Ryan, deceased.
3. To elect two Directors in the place of Messrs. Wm. Ross and Wm. Dalrymple, who retire in terms of the Company's Articles of Association, but who are eligible, and offer themselves for re-election.
4. To appoint Auditors for the ensuing year, and to fix the remuneration of the retiring Auditors, Messrs. F. W. Diamond and English and C. L. Andersson and Co.
5. To transact all such other business as may, under the Articles of Association, be transacted at an Ordinary General Meeting.

The Transfer Register of the Company will be closed from the 28th day of May, 1918, to the 11th day of June, 1918, both days inclusive.

Holders of Share Warrants to Bearer desiring to be present or represented at the Meeting must produce their Share Warrants at the places and within the times mentioned below:—

- (a) At the Head Office of the Company, National Bank Buildings, Simmonds Street, Johannesburg, at least twenty-four hours before the time fixed for the Meeting;
- (b) At the Offices of the Company in London, 208-224, Salisbury House, Finsbury Circus, E.C., at least thirty days before the date fixed for the holding of the Meeting;
- (c) At the Offices of the Paris Agency of the Company, "Credit Mobilier Francais," 30-32, Rue Taitbout, Paris, at least thirty-five days before the date fixed for the holding of the Meeting.

By Order of the Board,

L. S. RAYMOND, Secretary.

Head Office: National Bank Buildings,
Simmonds Street, Johannesburg,
13th March, 1918.

Transvaal Consolidated Land and Exploration Co., Ltd.

(Incorporated in the Transvaal.)

Notice to Shareholders.

NOTICE IS HEREBY GIVEN that the Twenty-third Ordinary General Meeting of Shareholders for the Year ended 31st December, 1917, will be held in the Board Room, the Corner House, Johannesburg, on WEDNESDAY, 19th JUNE, 1918, at NOON, for the following business:—

1. To receive and consider the Balance Sheet and Accounts for the year ended 31st December, 1917, and the Reports of the Directors and Auditors.
2. To confirm the appointment of Mr. C. Meintjes as a Director of the Company in place of Mr. W. H. Dawe, resigned, and to elect Directors in the place of those retiring in accordance with the provisions of the Company's Articles of Association.
3. To determine the remuneration of the Auditors for the past audit, and to appoint Auditors for the ensuing year.
4. To transact any other business which may be transacted at an Ordinary General Meeting, or which is brought under consideration by the Report of the Directors.

The Share Transfer Books of the Company will be closed from 19th to 26th June, 1918, both days inclusive.

Holders of Share Warrants who desire to be present or represented at the Meeting must deposit their Share Warrants at the places and within the times following:—

(a) At the Head Office of the Company in Johannesburg, at least 3 days before the time appointed for the holding of the Meeting.

(b) At the London Office of the Company, No. 1, London Wall Buildings, London, E.C.2, at least 30 days before the date appointed for the holding of the Meeting.

(c) At the Offices of the Credit Mobilier Francais, 30 and 32, Rue Taitbout, Paris, at least 30 days before the date appointed for the holding of the Meeting. Only Share Warrants bearing French stamps can be deposited at the Credit Mobilier Francais.

And shall otherwise comply with the "Conditions as to the issue of Share Warrants" now in force.

Upon such deposit a Certificate, with Proxy Form, will be issued under which such Share Warrant Holders may attend the Meeting either in person or by proxy.

By Order of the Board.

W. E. S. LEWIS,

Secretary.

Head Office.

The Corner House.

Johannesburg, 9th March, 1918.

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The City of Capetown publishes the following details of its proposed loan of £230,550. The following is the scheme for the extension of the electrical plant and the provision of new workshops, stores, etc., at the Graaff Electric Light Works, Dock Road, at an estimated cost of £180,550, as follows:—Generating plant: (a) One 3,000 k.w. Turbo alternator, £20,000; (b) one 1,000 k.w. motor generator, £5,500; (c) one 400 k.w. converter for supply of docks, £2,500; (d) one boiler (35,000 lbs. of steam per hour), £14,000; (e) one boiler (17,500 lbs. of steam per hour), £9,500; (f) steam piping, £2,000; (g) two turbo boiler feed pumps, £900; (h) wet air filters, £500; (i) extra high tension and low tension switchgear and protective devices, £30,000; (j) additional bank of transformers of 11,000 volts, £2,000, and also one of 2,200 volts, £250; contingencies, £8,460; total, £95,610. Distribution: Provision of additional feeders for—Two 5 sq. inch low tension cables, £7,010; one 0.33 x 0.44 x 0.33 high tension twin concentric cable, £1,800; sectionalisation of, and additions to, the transmission and distributing system in old Capetown, £28,242; prospective street lighting and extensions to distribution other than above, say £5,000; Woodstock additional feeders, and extension of distribution system, £6,000; additional converter and feeder panels for the sub-station, £2,300; meters, time switches, etc., say £9,000; motors, for hire purchase system, say £1,000; heating and cooking utensils for hire purchase system, say £1,500; contingencies, say £6,148; total, £68,000. Workshops, etc., £16,940. Summary. Additional generating plant, £95,610; distribution, £68,000; workshops, etc., £16,940; total, £180,550.



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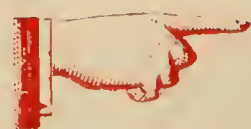
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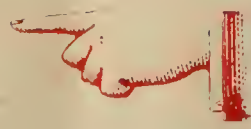
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